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PROBLEMS OF PHILOSOPHY

OR

PRINCIPLES OF EPISTEMOLOGY AND METAPHYSICS

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PROBLEMS OF PHILOSOPHY

OR

PRINCIPLES OF EPISTEMOLOGY AND METAPHYSICS

BY

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DEDICATED TO MY FORMER PUPILS,

WHOSE PROBLEMS AND PERPLEXITIES WERE THE SOURCE OF THE REFLECTIONS THAT ARE EMBODIED IN THIS BOOK; IT MAY BE THAT I CAN NO LONGER SHARE IN THE INTELLECTUAL GIVE AND TAKE OF THE CLASSROOM, BUT I MAY RETURN WITH INTEREST THE THOUGHTS THAT HAVE BEEN THE FRUIT OF MANY STRUGGLES TO MAKE CLEAR THE RIDDLES THAT VEX THE UNHAPPY PATH OF MAN WHEN HE SO MUCH NEEDS THE IDEALS WHICH HE CANNOT PROVE BUT ONLY LIVE

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PREFACE.

If the statement be rightly qualified it may not be too much to say that, in this work, I have tried to reproduce the results of my own reflections on philosophic problems. I do not mean by this that it is in any sense a pioneer work, because it is quite the contrary. If I have accomplished anything at all in the effort it is the result of contact with the great historical systems, as all rational philosophizing must be in modern times. If I were to name the men who have influenced my thought most, according to my own judgment, they would be Plato, Aristotle and Epicurus among the ancients, and Kant, Hamilton and Lotze among the moderns. Just what and how much is owing them must be determined by the reader. None of the debt, however, is systematic. It is only for the conception of philosophic problems and general ideas which are necessary for the interpretation of the past and development of present questions. I have avoided reference to historical systems except to show how a problem originated and have endeavored to discuss present philosophic issues with less reference to their evolution than to their functions and validity. I adopted this policy because I did not wish to implicate myself too closely with either the exposition or the criticism of historical views. This does not make what I have said new, but it does require it to be judged rather on its merits or demerits than on any avowed relation to traditional systems.

I have also been convinced that it is the duty of philosophers to discuss their problems directly and not merely the history and evolution of systems. These latter questions are important and indispensable, but they are not the only proper work of the man who expects to make philosophy do its designated service to the age. Moreover to do this service it must discuss the time-old problems, whether it succeeds in providing a positive or a negative message for mankind, and hence I have confined myself to the general problems that are as old as Plato, trying, however, to avail myself of all the results since his day and to bring philosophic reflection back to that point of view which represents or includes the physical sciences as well as the mental. Idealism has done so much to emphasize introspective and anthropocentric methods that, since Kant, it is almost impossible to induce philosophers to make any concessions to physical science and its results. Philosophy,

where it was not phenomenalism in disguise, has run off into the blue empyrean of transcendentalism while protesting against the possibility of it. As for myself, I feel convinced that it must seek the service of physical science and ever revise its constructions on the main lines of its problems as the progress of "empirical" knowledge requires it. On this account I have not arrived at any dogmatic conclusions upon some of the main problems of reflection, being content to outline the method for their solution and to show how far we have proceeded toward this, while I indicate my sympathy with the truth on both sides of disputed matters.

In the title to the work I have endeavored to avoid the suggestion that I have dealt with all the problems of epistemology and metaphysics. I have purposely omitted many subordinate questions like "personality," "unity of consciousness," "the ego," etc., because I did not regard them as in any way conditioning the conclusions upon larger questions. I have selected the main general problems in the two fields and given them a connection with each other sufficient to give the work a definite unity, but not to make any part of the system absolutely dependent upon any other. The unity is synthetic and not deductive, while I do not pretend to exhaust the subjects in their minutiæ.

One of the difficulties which I have always felt in the discussion of philosophic problems is the equivocal character of its fundamental terms. In spite of the most careful definition many of them will give rise to misunderstanding. To reduce this liability to a minimum I have adopted the device of putting many of the fundamental terms in quotation marks to indicate the recognition of this equivocal nature. I have confined this policy to technical terms of long standing use. This practice varies somewhat according to the connection and chapter under consideration. In some connections a term is more equivocal than in others. This I have tried to keep in view. But when I have used a technical term without quotation marks it is, with some exceptions, in the sense carefully defined and in none other. For instance, as exceptions, the terms "perception" and "cosmological" may be remarked. Previous to Chapter V., the term "perception" did not involve any technical questions and its equivocal nature is not indicated. When referring to Kant's use of the term "cosmological" I limit it to the conception of the world as having a beginning in time, but in other cases I intend it to imply a world of interrelated realities without regard to the question of their beginning. When I have indicated the equivocal use I leave to the reader the determination of the

sense in which it must be used to make the proposition true or intelligible. When I have placed the word *ontological* in quotation marks I have used it in the Kantian sense and when the term is without these marks it is used in the sense defined in the present work. By this policy of directly calling attention to the equivocal import of fundamental terms I have indicated the source of many, if not all, the disputes between the various schools of philosophy, where they are not due to questions of moral temperament, and in thus recognizing the liability to misinterpretation I can leave to the student the discovery of much that might have made the work longer and most uninteresting.

ERRATA.

Page 28 line 21 read *involve* for *involved.*
" 29 line 35 insert semi-colon after words "*theoretical ethics.*"
" 34 line 9 for *utility, not truth* read *utility, not law.*
" 100 line 27 for *were* read *are.*
" 153 line 17 for *nature meaning and implications* read *nature and meaning of what is.*
" 181 line 9 for *illicited* read *elicited.*
" 186 line 8 for *inductions* read *induction.*
" 188 line 37 for *I think* read *think.*
" 188 line 32 for *lead* read *led.*
" 192 line 34 for *concensus* read *consensus.*
" 202 line 18 for *the* read *that* before *Cognition.*
" 232 line 11 for *of* read *or* after *use.*
" 234 line 6 for *anticipatory* read *anticipation.*
" 250 line 37 for *were* read *was.*
" 256 line 15 for *can its phenomena* read *its phenomena cannot.*
" 288 line 25 for *and* read *an* before *inactive.*
" 303 line 4 for *it does mean* read *it does not mean.*
" 338 line 39 for *privailing* read *prevailing.*
" 346 line 21 for *show* read *shows.*
" 356 line 28 erase the word *not.*
" 357 line 12 for *is* read *are.*
" 364 line 36 for *gives* read *give.*
" 372 line 31 insert *comma* after *nothing.*
" 373 line 31 insert *comma* after *agency.*
" 414 line 36 erase *comma* after word *type.*
" 439 line 1 insert *of* between *and* and *the.*
" 451 line 38 insert *comma* after *harmony.*
" 458 line 35 erase *comma* after *consideration.*
" 502 line 39 for *which* read *what.*
" 526 line 21 insert *comma* after *change.*
" 547 line 4 for *in* read *is.*
" 550 line 18 insert *comma* after *motion.*
" 555 line 20 for *allusions* read *illusions.*
" 585 line 7 for *binignities* read *benignities*, and line 8 for *fact* read *fate.*
" 588 line 16 for *idealist* read *idealists.*
" 594 line 21 insert *no* before *criticism.*
" 601 line 36 insert *a* before *fact.*
" 618 line 7 erase *the* before *men.*
" 6:8 in German quotation for *Urde* read *Erde.*
" 623 line 10 for *ever* read *never.*
" 624 line 34 for *realized except* read *fully realized.*

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CHAPTER I.

INTRODUCTION.

HISTORICAL discussions often afford us the best method of analysis which we can adopt, as they represent conceptions understood and agreed upon sufficiently to make definition less necessary or explicit. This fact will explain why a few observations on some of the main intellectual movements in philosophy are here indulged as preliminary to the direct discussion of the fundamental problems of epistemology and metaphysics. I shall discuss them rather as "moments" or motives in the development of thought than as systems. It is simply certain elementary questions which I wish to discuss that are not always considered in the theories of "knowledge" and "reality." They may not require any consideration of systems at large, but only certain moods and assumptions lying at their basis. An exhaustive treatise would, of course, involve a complete history of philosophy as it turns about the conceptions to be discussed, but I do not regard this as either necessary or prudent in any attempt to elucidate some of the fundamental ideas on which epistemology and metaphysics live.

The two fundamental ideas out of which these sciences grow and which also distinguish them are *how* we know and *what* we know, with also considerable dubiety and discussion regarding what is meant by "knowing" apart from both the process and object of it. While it is difficult, if not impossible ultimately, to separate "how" from "what" we know, owing to both the nature of the facts and to the nature of the intellectual interests involved, yet there are certain exigencies which require us to abstract them in certain definite problems for the sake of establishing a basis for further discussion of the questions at issue. This is apparent in the whole history of human thought which has been as much interested in producing conviction in others as in reaching a subjective solution of speculative problems. The conversion of a critic or the instruction of a student on doubted questions may require me to establish a general premise or truth which does not carry with this self-evidently the truth of any given proposition, and it may never carry it with it in any other way. But it often happens that, if truth of any kind is discovered, it must be independently of some particular mooted matter, and we may get no farther. But this

separation of subject matter of discussion does not imply the absolute separation of "how" and "what," process and object, "form" and "content," though it defines the issues on which any profitable deliberation is possible. While I mean, therefore, to recognize an abstract distinction of the two questions I shall have reasons for often, if not always, considering them together. The primary question will turn upon what we mean by "knowledge." That term has been so much abused and so little defined that discussions of epistemology and metaphysics are perfectly useless until we know exactly what problem we are discussing.

There are three movements which affect the definition of the problem. The first culminates in Plato, the second in Descartes and the third in Kant. This, of course, is only a way of suggesting Greek, Mediæval and Modern philosophy. But I think the nature of the "moments" entering into the problems are better expressed in the personalities which either represented or initiated a tendency than in a mere chronological distinction. The first of these movements was not so vitally connected with religious ideas as the second, which was wholly preoccupied with these. Greek thought began in cosmological speculations, Scholastic thought in theological, and Cartesian and Kantian thought in epistemological problems, apparently eschewing an interest in either of the other two questions.

Greek thought began its reflection with entire confidence in its ability to solve its problems. These were the origin of the world and the nature of human knowledge. Scepticism as to human faculty was not known and did not arise until the Sophists began to apply the principle of change to sense perception. Every thinker from Thales to this school accepted without question human capacity for coping with the questions of the universe and knowledge. The distinction between sense and reason in some of them did not indicate any properly sceptical spirit or method as to the fact of knowledge, but only as to the source of *true* knowledge, however it may have stimulated the rise of doubt. The distinction only served to mark a difference of opinion regarding the nature of this knowledge as determined by its origin, each of them being assumed to be valid for its purpose. There was no question as to how we obtained "knowledge" generally and apart from cosmological problems and objects. The question was whether sense or reason gave us the knowledge we actually possessed or were assumed to possess about nature. This knowledge was granted. It was only disputed between the schools whether sense or reason represented the most important source of it.

Of course there were differences of opinion regarding the nature of cosmic unity, whether of the pluralistic or monistic type, but all agreed that there was a unity of some kind, so that, in so far as the process of knowledge was concerned, the differences of opinion turned on the sensory or intellectual, or in modern parlance, the materialistic and the spiritual, view of this knowledge, the conflict being between the common and the educated man in regard to the world and its phenomena, though in general they held to very much the same propositions.

It was with that remarkable movement which began with the Sophists, that real scepticism took its rise. These thinkers began to toy with the "relativity" or "phenomenality" of knowledge, stimulated thereto, no doubt, by the discovery of illusions in sense and reason and aided by a confidence in logic which might have been incompatible with their doctrine. The nature of "objectivity" had not been doubted before, whether regarded as an object of sense or reason, but under sophistic discoveries distrust of human faculty began. It did not of course in most of its disciples take the form of doubting the validity of what we would call the states of consciousness as such to-day, but it did question the validity of our supposed sensory "knowledge" of the world. This is to say that the mind began to wonder if its "ideas" of "reality" were correct, or in any way represented what they were supposed to represent. The common mind had always trusted, and the philosopher was not disposed to disagree with the common mind's verdict, that the physical world as presented to sensation was in any respect different from its appearance. The philosopher might indulge in all sorts of speculations about its evolution or origin and suppose all sorts of supersensible "realities," but he always assumed that they were like the "reality" which he saw and felt, only that they were too "fine" to be perceived by our ordinary sense perceptions. In technical language he assumed no antithesis between what he saw and what he did not see. But the sceptic of the sophistic period began to believe that our senses were not only not able to perceive "reality" but that the ideas formed from sensation about that "reality" were illusory. He extended his doubt to the general principles of morality and many of the intellectual convictions on other subjects. Scepticism thus obtained a footing from which it has not yet been dislodged for all those individuals who have to pass through the same mental development. As in all ages, and as perhaps will always be necessary, the problem of knowledge and the problem of things went together, though a foundation was laid for their distinction in some form. All the facts were there which resulted finally in such antitheses as "phe-

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nomenal" and "noumenal," "absolute" and "relative," "ideal" and "real," "sensational" and "rational." Previous speculation was properly metaphysical, as it was occupied with the nature of things, confidence in mental faculty being assumed. The subjective world was not a disputed factor in the case. But the sophistic movement opened up the field of illusion with all its manifold puzzles which have ever since provoked seriousness as much as they elicited mirth. It attacked the very stronghold of conviction, and if it did not prevent belief from ultimately having its way, it gave that mental instinct all the trouble it could devise in the efforts to justify itself. The old opposition between sense and reason as arbiters of knowledge became a new opposition between mind and nature, consciousness and object. This latter form of statement was long in developing, but it was nascent in the conceptions which the sceptical movement of the Sophists initiated. They suggested the analysis of mind and raised questions which tended to dispute its capacity to "know," or to conceive the "nature of things" in any such terms as had been previously taken for granted.

Plato follows with a constructive effort where the Sophists had been destructive. He did not dispute the "phenomenal" nature of sense deliverances, but endeavored to supplement their defective results with the insights of higher faculties. He was thoroughly saturated with both the metaphysics and the psychology of previous schools, and felt the force of sceptical difficulties so strongly that his whole elaborate philosophy was written to combat them and to provide an answer to the questions raised by them. In doing this he succeeded in completely arresting the development of scepticism until its later revival when Greek civilization was on the way to the grave. The breadth and depth of his thought, the charm of his style, and the compass of his genius, as well as those social needs which defy all scepticism except that of a reforming kind, were too impressive to permit even the witty and disputatious Greeks to waste their energies in intellectual paradoxes and laborious trifles. Consequently, Plato made an effectual and more or less successful attempt to keep back the tide of scepticism, which, though it suggested the modern distinction between the subjective and objective, was not strong enough to destroy the fundamental assumption of antiquity, namely, the identity between "thought" and "reality."

Plato's system has been called Idealism, but there can hardly be a more misleading conception of it than is conveyed by this term. The initiated understand it, and defined to suit the case there can be no objection to this description of it. But the term "idealism" is so

infected with the subjective implications of the psychological point of view and modern assumptions couched in the same language that the reader is certain to obtain a totally false conception of Plato's philosophy so described. Intellectualism as opposed to sensationalism, metaphysically defined, would more nearly define his doctrine, as it insisted upon assigning to the higher functions of the mind the duty of determining truth and the nature of "reality." We could just as well call his system "realism" as "idealism," since the very conception of his "idea" was that of the "real," no matter what definition we give either one of them. But the essential thing to know and recognize is the simple fact that the ordinary translation of his language will give us no true conception of his philosophy. The opposition which defined the fundamental controversies in the earlier metaphysics and cosmology was that between the "one" and the "many," by which was meant the question whether the absolute was single or plural, whether monism or pluralism was true, whether monism or atomism represented the nature of things. The opposition, which was not worked out, and which defined the position of the Sophists, was that between subjective and objective. But with Plato this opposition, absorbing all others, was that between the transient and permanent, the ephemeral and the eternal. His psychology did not affect this position. As between mind and matter, psychology and metaphysics, his doctrine was the same for both. Plato remained true to the general monistic traditions of Greece. He never supposed that the internal and external worlds were different in kind. It might even be maintained that he did not distinguish in *kind* between the transient and the permanent but only in *values*. It was around the central fact of *change* that his whole philosophy turned, as Lotze says all metaphysical inquiries must turn. He probably would have agreed with Lucretius that "motion" is eternal. He was possibly not aware, or only half aware of the equivocation in the Greek term κίνησις. This generally did service for the ideas of *motion* and *change* in modern parlance. He admitted the "becoming," change, progress, evolution of Heraclitus, but with it he saw, or thought he saw, something permanent or eternal which was thus not subject to the law of change. He might call it "substance," "essence," "being," "idea," "form," but it was still an *activity* of some kind. Hence he could well apply his term "idea," as we cannot after Lockian usage, to both the mental and material, to the "universal" whether in consciousness or out of it. The antithesis between subjective and objective was not recognized by him. The nature of the soul and of the world was the same. It would make no difference

whether we called it matter or spirit. One was only a finer aspect or kind of the other, just as it was in Lucretius. The two men appear to have differed on the question of the "immortality of the soul," but in reality they agreed. Their difference was in their definition and conception of the term "soul." Plato no more believed in *personal* immortality than did Lucretius. It was the "substance" of the "soul" that Plato thought imperishable, and so did Lucretius. It was the "form" of the "soul" that Lucretius thought perishable, and so thought Plato, the meaning of "form" having changed its character between the two philosophies. Both were monistic in regard to the questions of matter and mind. Mind was not regarded as immaterial, but only as supersensible. Even the elemental physical universe was supersensible. Hence when it came to his psychology Plato had not to reckon with an opposition between consciousness and "reality" or an external world, for they were essentially identical in kind. He had only to discover the faculty which revealed to us the permanent as distinct from the transient. The Theætetus discusses whether this faculty is sense perception, memory, reason, or intuition, and leaves the question undecided except that somehow the mind actually obtains a knowledge of this permanent nature of things mental and material. In fact "knowledge" becomes a term expressive of this fact, rather than a word for what we should call "function" of brain or soul. It was an activity, but it was also an activity identical in kind with the thing known. We might express it by saying that consciousness was the transmitted activity of the external world into the mind or subject, the "moment" of transition from the external to the internal world. The billiard ball but receives the motion of the cue and retains it as its own activity until imparted to another. Consciousness with Plato is thus but the transformed "motion" of the external world and it is only its *meaning* that is permanent, while its kind or its nature is the same as that which produces it, namely, the activity of the physical world. "Knowing" and "being" are identical. The modern antithesis, outside the Hegelian system, between "knowledge" and "reality" is not known. They are identical. The only opposition recognized is between the changeable and the permanent, the "phenomenal" and the "noumenal," and the "phenomenal" is not confined to the external world, but applies equally to one part of the internal world, namely that of sensation. In fact, it would be better to say that sensation and the sensible world were the same in kind, namely, "phenomenal," while the supersensible world both physical and mental is the same in kind. The opposition is not between the

internal and external, but between two aspects of both. The supersensible material world is the "object," as we should say, of "intuitive knowledge," but as Plato would possibly say, the "reflection" of the mind, an expression of the same nature.

It is thus apparent that Plato opposed scepticism, not as a doctrine wholly without foundation, but as one not expressing the ultimate nature of things. Heraclitus and the Sophists were simply one sided. They had a half truth which Plato regarded as worse than no truth at all. He answered it by supplementing it. He accepted its conception of sensation, but he added to it a conception of reason which the logic of scepticism implicitly recognized, but which the sceptic personally never saw. He did not regard sense as wholly given over to illusion. It, too, had a meaning for "reality," namely the source of our "knowledge" of change. He regarded it as illusory only when taken as giving the ultimate nature of things, but not illusory as expressing or giving the phenomenal side of "reality." In one point he failed. He never adequately connected the two aspects of his system. Modern thought does it by making the higher functions of mind depend chronologically, and perhaps "causally," upon the sensory. This we effect by saying that all "knowledge" depends on sensation though it is not constituted by sensation. But Plato recognized no such relation. Here he exhibited what is called his irresolvable dualism. The functions of sense and intellect were independent of each other, possessed no reciprocity of action, had no common object and could in no intelligible way unite the "phenomenal" and "real," that is, the sensible and the supersensible worlds.

The Stoics and Epicureans supplied what Plato omitted. They superimposed intellectual functions, or reason, upon the data of sense, and in this way gave some unity to the nature of both thought and things. Sense became the medium for all knowledge and intellect was only the final court of appeal, or the one determinant of it attending sensation. Thus sense came to stand between what it transmitted and what reason adjudged. Thus "experience" in some sense of the term was the "origin" of "knowledge," the primary criterion or source of what we "know." The two schools were still monistic in their philosophy and psychology, the Epicurean even in his atomism. After them scepticism tried to revive its fortunes in the doctrines of Antisthenes and Pyrrho, and belief its fortunes in the last and despairing systems of Neo-Platonism, both of which discredited, or sought to discredit, sensory experience. But the more sober and scientific conception of philosophical and psychological problems was found in the

Stoics and Epicureans after Plato, and whatever view they took of sense perception in relation to its object they but followed the correction which was instituted by Aristotle in the Platonic psychology, and this was to give sense perception a primary rather than a secondary place in the origin of knowledge. All the rest remains practically the same as Plato's doctrine in its essential meaning.

When it comes to summarizing the conceptions of Greek thought in the doctrines of "knowledge" and "reality," it will be found that, in spite of a few deviations from the general rule regarding sense perception or "experience," as with the Eleatics and Plato, also even Heraclitus, the Greek mind assigned sense perception the primary place in the functions of "knowledge." The main discussions centered about the question as to what this function decided regarding "reality." It was not primarily interested in the psychological process, that is epistemological problems, by which a knowledge of things was gained, but in what the nature of things consisted. All its interests in psychology were subordinated to this one end. Its genius was essentially metaphysical. In this it began and ended in the assumption that the internal and external worlds were the same in kind. Its thinking was governed by the principle of identity. Causality, as we usually conceive it, had a secondary place, indeed was hardly recognized at all. It obtained a slight notice in the love and hate of Empedocles, in the "moving cause" of Plato, and the "prime mover" of Aristotle, a cause, however, which once set the universe to moving and then sat outside it idle watching it go. It was the sense of unity or identity that dominated the Greek consciousness, as this was its first great discovery in the contemplation of nature which the unreflective mind had supposed to be more chaotic than it really was. It was this instinct or tendency that prevented it from becoming dualistic. It might admit a supersensible world, as it did, but it would not admit anything superphysical or immaterial. Its very notion of a cosmos was unity of kind, while to us with changed points of view this expresses nothing more than order, a teleological, not necessarily an ontological unity. Psychology and epistemology were interesting only as they aided in the determination of this result. All its investigations and all its terminology had a direct or indirect, a nearer or remoter relation to the question of the transient or eternal. The "absolute" and the "relative," the "phenomenal" and the "real," "being" and "becoming," "knowledge" and "sensation" when applied to Greek conceptions of fundamental problems had no interest primarily, if at all, in the antitheses between the subjective and objective, but only in

that between the ephemeral and the eternal. Its problems were physical or metaphysical, not psychological or cognitive, and so concerned what was permanent. The Epicureans thought that only the primary elements were permanent. Plato thought that also certain finer activities of their compounds were continued in the metamorphic changes of nature while admitting the eternity of all substance, although this was conceived in somewhat the same form as the modern doctrine of the conservation of energy. But everywhere the issues centered in what was eternal and what was transient.

The momentum and influence of this tendency was not lost in Christianity. It survived in the doctrine of the immortality of the soul and the transient nature of the physical order. The physical universe was conceived as the creation of a divine being and subject entirely to his will and this had decreed that it should be destroyed. The soul of man, though it was created, was made imperishable, at least upon certain moral conditions. But in general we have the conceptions of Plato and Neo-Platonists affecting the whole period of Christian development. Plato had depreciated the sensory world and the Neo-Platonists had carried this so far as to describe the "real" world as the negation of all that was "known" as sensory or mental. It placed the supreme interest of man in something wholly transcendental. Christianity accepted this conception and concentrated all moral interests in such a world beyond sense and made the individual soul imperishable. A transcendental world of "reality," spiritual in nature, whatever that was or meant, beyond both the sensible and supersensible physical worlds, became now an object of belief. It was the negation of all that was supposed of the material world, whether sensible or supersensible, and so was called immaterial. In the controversy with Greek thought at the time, which was inevitable, it became a question as to how such a world was known. The Greek had been accustomed to ask for the reasons which justified a belief, and he called these reasons "knowledge." It was not enough that a fact should be asserted to exist. He must have proof. He must have some certitude that the alleged fact was founded in experience. He was accustomed to insist that whatever was "known" or believable was attested by its phenomenal appearance in the physical world, and hence by some sensory experience, or perhaps by some regular law of "nature." He consistently applied this view of things to his supersensible physical world and exacted of all assertions the same criterion. Hence when the existence of an immaterial soul, of divine incarnation, of miracles, of personal existence after death, of a personal God were asserted he

naturally enough put them to the test of experience and reason. Christian thought readily enough accepted the Greek conception of "knowledge" as applied to the physical world and originating in sensory experience, and so placed its beliefs on grounds other than "knowledge." It set up a new organon of belief which it called *faith*. We must remember, however, that at first this "faith" was not an intellectual process, a faculty of knowing or perceiving, or an assent to propositions, whatever it became afterward. It was at first a name for a certain quality of will, fidelity to a person or principle of action. This was its original meaning in more languages than one, in Greek, Roman, and especially in Hebrew. "Faithfulness" expressed its proper meaning originally. But the existence of a large number of alleged facts like the resurrection, the incarnation, life after death, miracles, etc., showed that ideas and convictions were as essential a part of Christianity as action and its social scheme of practical morality. It was this body of alleged facts which brought it into controversy with Greek modes of speculation and required it to assign some canon of evidence for the fundamental beliefs on which it founded its transcendental world in which it concentrated all its interests, after its immediate social scheme came to an end. Having admitted that "knowledge" was of this world it gradually substituted an intellectual meaning for the old one expressed by "faith" and set it up as an organon for beliefs beyond the reach of "knowledge" as either a sensory or rational process. Thus, "faith" became a name for an assent to truths rather than a quality of will. The Christian would admit that his doctrines were not an object of reason and he simply established a change of venue in the controversy by insisting that there was another and higher court of conviction than human experience in the sensory and rational world.

There was here a sort of double dualism like that of Plato. We saw that Plato found the antithesis between "phenomena" and "reality" to hold true for both the internal and the external worlds. The dualism of one was parallel to that in the other, though the antithesis was the same in both. But in Christian thought the dualism between the material and the spiritual worlds was not always expressed in the same terms as that between the two functions of the internal world. In one it was the dualism between matter and spirit and the other the dualism between knowledge and faith. The material world was the object of "knowledge," the spiritual world the object of "faith." But various influences, some of them the result of natural human instincts and experience with the practical problems of

life, and some of them the effect of philosophic traditions, conspired to raise the question whether faith could provide the certitude which seemed so necessary if the issues defined by religion were so serious as the doctrine of salvation implied. This state of matters at once started a discussion of the relative claims of faith and reason, "knowledge" coming to mean certitude of conviction in regard to any object of consciousness rather than conceptions of experience. There was latent in it the whole question of the relative values of the religious and the secular life, but the apparent controversy turned about the question whether reason could certify the existence of the transcendental objects of faith and give them the certitude which, in the secular life, was the necessary or accepted justification for action. That is, would reason adequately support the existence of God, immortality, the incarnation, the resurrection, miracles, the atonement and the whole body of religious doctrine to make them effective and as obligatory to consciousness as "natural knowledge"? In the process of the dispute the very nature of the points of issue soon subordinated all the minor questions to the two general ones regarding the existence of God and the immortality of the soul. The controversy waged with varying fortunes for reason and faith until reason finally conquered. The discussion between nominalism and realism with the victory for the former revived the subjective or psychological conception of "knowledge," so that, with the revival of learning, it prepared the way for the philosophy of Descartes. It of course took centuries to effect this result, but the outcome was simply the natural consequence of the struggle between the unsatisfactory dualism of Christian thought and the essentially monistic influence of Greek speculation which still affected thought wherever it had the fortune to touch it. All but the two main problems were gradually relegated to theology and lost an interest for philosophy, as they were contingent upon the proof of the first two regarding the existence of God and the soul of man.

Descartes came at the junction of several intellectual movements. The old astronomy had been shattered. The Renaissance had reinstated an interest in ancient literature and philosophy. Nominalism had given a subjective impulse to ideas. The whole system of Scholasticism was discredited. The New World had been discovered and had begun to excite the imagination of men. Physical science had arisen and diverted human interest into things terrestrial as religious thought had confined it to things transcendental. The consequence was that Descartes took up the work of adjusting the claims between scepticism and faith. He accepted and defined more clearly than ever

the metaphysical dualism of Christianity in regard to the nature of matter and mind, but he returned to a psychological monism in his conception of the ultimate functions attesting man's knowledge. He took a position which defined for all subsequent thought the fundamental antithesis between the subjective and objective, whatever that may mean, and reinstated the psychological or anthropological, or perhaps better the anthropocentric, point of view in speculation on all the great questions of philosophy. His metaphysical dualism, owing to certain definitions in his system and to the natural instinct for unity in the philosophic mind, easily passed into the metaphysical monism of Spinoza. But this is not the chief interest of his influence. The fundamental distrust of sense perception with which he started and the final reliance on "consciousness" which, both from its conception as a function of the soul and as definitely excluded from the nature of external reality or matter, became a purely subjective fact and criterion of "knowledge," gave rise to the controversy between realism and idealism where, before, it had been between materialism and spiritualism. Ancient thought, as we have seen, accepted no opposition between the nature of the internal and the nature of the external worlds until Christian thought defined their relation. What may be called the "identity between thought and reality" was the fundamental postulate of Greek speculation in its best estate. The influence of Christo-Cartesian thought was to establish an antithesis where ancient speculation accepted an identity. Mind and matter were so separated that no reciprocity or interaction became possible. In Greek thought the assumed identity of "knowing" and "being" prevented all difficulties suggested by the modern question, "How can the mind know external reality?" But when Cartesian philosophy proposes to shut the mind up in itself, and while making consciousness the final court of truth also makes it a purely subjective fact, it suggests or produces an antithesis between subject and object which reinstates all the scepticism of the Sophistic schools and later Academy. Consciousness, at least of the sensory type, could either not attest the existence of an external "reality" or it could not represent its "nature." The mind was shut up to itself for "knowledge." Its own states were all that it could "know," assuming still that "knowledge" and "being" were the same, though refusing to apply the postulate to external "reality."

Locke, Berkeley, Hume and Kant simply take up this cue and variously follow it out to its logical consequences. Locke let slip the remark that "simple ideas," which were given in sensation were "real" and that "complex ideas," which were the product of the

"understanding" were "fictitious." Among these "complex ideas" were those of "cause," God and the soul. This simply opened wide the door to scepticism, which, of course, was fully enough suggested by the subjective tendency in psychology in the field of sensation. Still Locke believed in both mind and matter. But Berkeley, taking the subjective conception of sensation more seriously denied the existence of "matter" and admitted only that of "spirit." Hume, with some sense of humor and sceptical mischief in his nature, put Locke and Berkeley together and asked for the evidence for both matter and spirit, and made himself content with phenomenalism. Kant started to refute Hume, denied his premises and accepted his conclusion. Philosophy had before him embraced all the great problems of human reflection, but had gradually dropped those which it was willing to leave to religion proper, as either not interested in them or as contingent on more general conceptions, and retained as its final claim the adjudication of belief in the existence of God, immortality and freedom. Kant after indicating that philosophy had, like Hecuba, to mourn for the loss of her children, proceeded to rob it of the last excuse for its existence, and though he tried to pacify religion by bringing in at the back door what he had thrown out at the front door, he attained nothing more definite than the phenomenalism of Hume.

It is not necessary to trace in detail the general principles of these three men between Descartes and Kant. In so far as the main problems of philosophy are concerned they show only different degrees of the same tendency. They have the same starting point, namely, the subjective character of consciousness and the limitation of "knowledge" to its data. Descartes did not seriously question the existence of the external world when he put the hypothetical query about the trustworthiness of sensation. He showed that this was only a method of indicating that the final court of adjudication was the higher reflective consciousness which included "reason" and its functions. In spite of his apparent scepticism of sense perception he still accepts its importance in the derivation of "knowledge." Locke does the same. But Berkeley applies the dicta of scepticism with full force to the judgments of sense, but is too orthodox in theology to see the application of the same assumptions to "spirit." Hume simply applies the logical knife to Berkeley's idealism and leaves to "knowledge" nothing but sensations, the fleeting transient phenomena of mind. Kant does the same, but expresses himself in a terminology that is well calculated to deceive the ordinary philosopher and theologian. He is emphatic in his assertion of the purely phenomenal nature of

"knowledge," the non-provable nature of the three main problems of metaphysics, agnosticism in regard to "things in themselves," and the "subjectivity" of things in general. Whatever he may be supposed to have meant by his doctrine of time and space, he effectually installed scepticism in the discussions of all questions affected by sense perception. The whole transcendental world of "things in themselves" represented what was entirely "unknown" and "unknowable." Its existence was admitted as a fact, but the belief of it was left unjustified. In his earliest conception of it he assumed that it acted causally on the mind but in spite of this was still "unknown." Later he withdrew the statements in which this causal action was admitted or asserted and left the existence of "things in themselves" unsupported by any evidence in fact or reason. "Phenomena" were all that could be "known." Following the Cartesian assumptions about "consciousness" and the Leibnitzian assumption denying all reciprocity or interaction between the monads, between mind and matter, unless we accept the "receptivity" of sense, and thus denying the possibility of "knowing" the transcendental "reality," Kant thus defined by indirection what he meant by "knowledge," namely, phenomena of consciousness. "Knowing" was *having* a fact in consciousness, or simply unifying it with other similar facts. That "knowing" should be such a thing as "perceiving" an object not in consciousness at all, or affirming with certitude and unqualified right to believe the existence of any "reality" transcending sensation, if fact and the inalterable laws of thought necessitated it, seems not to have entered his mind, at least in so far as his manner of expression is concerned. "Knowledge" was simply having facts of consciousness and systemizing them and their relations in terms of the "categories," whose functions as laws of thought never availed to enable Kant to solve any of the sceptical problems elicited by the asserted phenomenality of experience. Those problems seem to have been largely misconceived, and the logical distinctions adopted for discussing them only obscured the issues or indicated a position in which it was impossible to decide on which side of a question Kant really was. There is no adequate definition and explanation of fundamental concepts, such as phenomenon (Erscheinung), intuition (Anschauung), experience (Erfahrung), knowledge (Erkenntniss), perception (Wahrnehmung), conception (Begriff), form and matter (Form and Materie) and a host of others. He uses no illustrations of fact whatever, except the one famous instance of the boat sailing down stream, and the bullet on the pillow. On the issues of realism and idealism he is not intelligible, as

he seems not to know even what they were and are. On the whole the entire movement which he initiated seems to have had no clear message whatever for philosophy. It had finally eliminated the last three problems which were supposed to constitute the field of metaphysics, and with them the whole transcendental world, the superphysical world of antiquity, and then tried to juggle with the concept of "metaphysics" without adjusting itself to science when in fact its procedure had left no other legitimate field of interest. It became so enamored of "phenomena of consciousness" that it could not devote itself to science, and its agnosticism on God, Immortality and Freedom made it impossible to satisfy religion by any discussion of its philosophic problems. The consequence is that it wanders about in a maudlin intermundia between science and religion, using an orthodox language with a heterodox content on every question where intelligible speech is a duty and a necessity.

This characterization does not deny the fact that, when interpreted in intelligible terms, this modern idealistic tendency initiated by Kant and his school is profoundly true in its essential conceptions. But its truth needs to be expressed in the vernacular which will give it the currency and power which philosophy is capable of possessing and which is due its claims as the legatee of the highest knowledge. All that I wish to indicate by complaint and criticism against its obscurities and evasions is that its equivocal position on the fundamental problems of human thought and its indifference to science and scientific method deprives it of the heritage to which it lay so persistent a claim. It should recognize the extremely complicated nature of the general conceptions with which it deals and endeavor to first give them the analysis and definition which are the primary requisites to a clear understanding of its discussions and attitude on the issues which the mental and moral problems of the age force upon it. It is not enough to acclaim idealism and repudiate realism, or even to reconcile them. These conceptions are both of them charged with too large a history and represent too general abstractions to be self-interpreting. They embody relations to many distinct problems, each of them as equivocal and complex as the doctrines which they are supposed to elucidate. Hence we cannot take for granted that we are making progress by simply repeating the shibboleths of any particular theory without studying its incidents and relations to the practical and intellectual problems of the age. A theory has value in proportion to its ability to explicate minutiæ of human life as well as describe in abstract outlines the general movement of thought.

Let us summarize the result of this introductory analysis. It can be done by briefly characterizing the different stages of human reflection. The three stages into which we have divided the history that has passed under review had their various problems and interests. The ethical and religious questions were integral elements of their speculations, even though the primary impulse was purely scientific or philosophical. The various interests of life are so articulated that knowledge in any one department of inquiry inevitably influences all others in some degree. Ancient thought began its speculations in cosmological questions. These concerned the "origin" of the visible and tangible world. It was not the "origin" of it by any process of creation, but its "origin" from elements. Existence as it was known was conceived as a compound made up of simple elements. Efficient causes were not the primary object of inquiry, but mainly material causes. The conclusion of the philosopher was that the sensible world was made out of supersensible elements, but still of matter the same in kind as its compounds. It affected the religious consciousness only when it developed into the denial of the immortality of the soul, as in Epicureanism, which in this issue defined the controversy between Greek and Christian thought in its metaphysical aspects. But on its psychological and ethical sides the controversy in Greek thought was between sensationalism and intellectualism, between the sensuous and the contemplative life, between vulgarity and culture. In Christian periods this antithesis was expressed in the opposition between the carnal and the spiritual life. In modern thought, after having eliminated the problems of metaphysics as understood in mediæval thought and having concentrated interest on the psychological and epistemological issues the controversy turns about the relative ethical values of sensory and intellectual objects again. Consequently we may summarily characterize the general movements of the different periods in the following manner. Greek thought was governed by an ethical motive when it was not occupied with cosmological questions and represented the opposition between sensationalism and intellectualism. Christian thought was primarily governed by the metaphysical question as a condition of the ethical and religious, and represented the antithesis between materialism and spiritualism. Modern thought having relegated metaphysics into the limbo of the unknown represents the controversy between realism and idealism. This does not coincide exactly with either of the others in its appearance, although advocates of one side love to make us believe that it is more or less a combination of the two movements in one. The idealist tries to make us believe that his

position is opposed to materialism, but he assumes the coincidence and identity of sensationalism and materialism which is neither historically nor philosophically true. Idealism had its origin in epistemological considerations, and so did realism. Materialism had its origin in metaphysical questions and so did spiritualism. One concerns the problems of "knowledge," the other the problems of "reality." One asks how I "*know* reality," the other what is the "*nature* of reality." Hence I must insist that, if there is any relation between modern and ancient thought in the antitheses that I have indicated, it is the apparent connection at least between the problem of realism and idealism and that between sensationalism and intellectualism. They at least partly coincide. But as I am not interested in defining their relation in detail, but only in expressing the differences between their motives, both of which were ethical rather than metaphysical, while that of reflective Christianity was primarily metaphysical and then ethical, I may pass by all other questions in the comparison. We see then that each intellectual movement had its own distinctive way of conceiving its problems and interests corresponding to them.

CHAPTER II.

GENERAL PROBLEMS OF SCIENCE AND PHILOSOPHY.[1]

ANCIENT thought made no distinction between science and philosophy. They were regarded as the same, and it is only the gradually developed difference of their fields at their outer limits that has enabled us to distinguish them to-day. For there is a point at which they more or less interpenetrate. But as philosophy, conservative of its traditions, is either mainly reflective, speculative and critical, or receives its primary impulse from the study of mental phenomena, while science is more generally associated with the study of physical nature, the conception of the two inquiries is affected by these considerations. But whether their differences are of method, of field, or of attitude on the various problems of human interest, they are so articulated that a comprehensive view of intellectual problems is impossible without exhibiting their interrelations. They are both of them attempts to ascertain the rationale of things and hence proceed on the same general lines. Their problems may not always coincide, but their principles are the same. Hence we may well link them together in the endeavor to elucidate the questions that excite human curiosity.

The primary impulse to human inquiry is the desire to have the "explanation" of a fact. "Explanation" may be an equivocal term, as it undoubtedly is, and may involve various expedients or alternative ways of looking at facts in order to satisfy curiosity, but in all of its meanings it comprehends the conception of some other fact, real or supposed, that enables us to accept the first as a matter of course and that removes our fear, our wonder, our confusion or our suspicion of irregularity in the occurrence of events. "Explanation," however, in its full extension, comprehends variously the satisfaction of the demand for the "law," the "cause," the "nature," and the "purpose" of events.

[1] A part of this chapter is a revision of an article published on the same subject in the *Philosophical Review*, Vol. XII., p. 386. I have made some changes, but none that are important except in the case of the terms *ætiological* and *noumenological*. I have simply interchanged these terms, using in this book "ætiological" where I had used "noumenological" in the article, and *vice versa*. I have not changed the conceptions involved, but only the terms for denominating them, as I thought the present usage was truer to historical ideas and would thus represent the discussion in a clearer light.

There arises in connection with inquiries to satisfy these demands the further question regarding the grounds or reasons for belief in any of these matters, including the processes by which belief is effected. This may be called the problem of "knowledge" as distinct from that of the things known or believed. There are thus four general problems in science and philosophy, or human inquiry. They are prompted by the corresponding questions regarding any event or thing, "What causes it?" "What is it?" "Why is it?" and "How do we know it?" I use the term "why" here to indicate the question regarding the purpose of a fact. It is no doubt elastic enough to involve an inquiry for the cause and the nature of facts as well as their purpose, but for the sake of brevity in stating the questions I limit its import for the present to the one problem. I may classify them as follows:

Problems.				
	Ratio essendi.	Material cause.	Constitution.	Nature.
	Ratio fiendi.	Efficient cause.	Producer.	Agent.
	Ratio agendi.	Final cause.	Purpose.	End.
	Ratio cognoscendi.	Logical cause.	Evidence.	Reason.

All of these are various forms of "explanation." But they represent different intellectual interests. The *ratio essendi* indicates what an event or thing *is*, and this is usually done either by explicitly stating its qualities or classifying it, which is a way of implicitly indicating its qualities. In Greek speculation, however, it would not always take this form, but would be an assignment of a thing's composition. A thing would be what it was made of, the elements of which it was composed. This way of viewing a reality would characterize every stage of thought which endeavored to determine the nature of reality by referring to its component elements. But classification must rely upon the qualities which define and distinguish things and so all reflection that unifies phenomena and things by classification must express the "material" cause or nature of events or things by their qualities, which constitute them, not necessarily as elements after atomic analogies, but as characteristics which indicate what their "nature" is. We may assume, however, that either alternative for determining the "nature" of a thing is permissible, composition or comparison, according to the way in which we wish to view phenomena and things. We may wish to inquire into the composition of realities where we suppose that the complex wholes are the same in essential properties as the elements, or we may wish to engage in comparison of realities where "nature" is convertible with qualities possessed or not possessed rather than elements in composition. Hence the *ratio essendi*

of modern thought may apply to the determination of properties instead of elements. The *ratio fiendi* is the active or initiating cause of things or events. It represents any fact or thing which is supposed to initiate change, whether it be the movement of a simple element in space or time, or the arrangement of elements to form a composite or organic whole, a cosmos. It answers the question demanding the knowledge of what it is that initiates or produces any complex and organic individual, or any change in the action of either simple or composite individuals. The *ratio agendi* explains itself as the purpose of things or events, the end toward which any fact or system of facts tends to move. The *ratio cognoscendi* is a little unique in the fact that it is not wholly distinct from the other three *rationes*, at least in respect of the subject matter with which it deals. It is the term for what I shall call *scientific method*, or the process by which conviction is established in regard to conclusions in any field of inquiry, whether it regard the facts which demand the various causes in explanation of them, or the evidence of the causes themselves. It therefore represents the *evidential* aspect of every problem before speculation, and hence is specifically the epistemological problem. It covers the field of *conviction* and not that of *explanation*. It does not offer a ground for the existence of events and things, but only of knowledge and belief regarding them and their causes.

In dealing with these various problems I have assumed that the facts on which the demand for explanation is based are known or accepted as given. I have not assumed that there is any problem regarding their existence. It is true, however, that certain "facts" are as much the result of inquiry as are explanations. But the inquiry in regard to the existence of "facts," by which I mean to include *events* and *things*, is regulated by the *ratio cognoscendi* alone. This is preliminary to asking any other question about them, the answer to which involves the evidential as well as the explanatory method. But passing all minor questions aside, prior to matters of explanation and following the problem of mere "facts" as unrelated objects of observation there is another problem of some importance which is associated very closely with the simple occurrence of "facts." It is the *law* of events or things. We are not satisfied with the mere occurrence of events or phenomena, but we seek to know the *law* of that occurrence. This term "law" is variously interpreted. Sometimes it refers to the "conditions" of an event's occurrence. Now "conditions" is a term that is equivocal. It may denote either an active cause of events or the passive and invariable concomitant of them. In my own conception,

however, *law* does not properly express "conditions" of any kind, but only regularity. The idea of causality, whether static or dynamic, has no right to association with it. It is but a name for the *constancy* of events or regular order, the uniformity of coexistence and sequence. This is a problem in science and philosophy quite as much as explanation. But it is not causal explanation of any kind. It is subordinate and prior to this. Its place in the more complete classification of intellectual problems will be ascertained in the further analysis and discussion of the various questions involved in science and philosophy. It suffices to note at present that the uniformity of events is as much a matter of inquiry as the fact and causes of their occurrence.

This general analysis of problems prepares us to give a more definite and somewhat different classification of them. As the *ratio cognoscendi* problem is a general one, covering the question of conviction in all others, it need not serve as a basis of any system of sciences, and consequently I shall determine the analysis of intellectual problems by the objects associated with the quest for truth, whether it be for events, for laws, for ideals or for causes. After this more definite delimitation of our problems we shall be prepared to take up directly the definite questions of epistemology and metaphysics.

The best way to delimit the questions which we have to consider is by means of what may be indifferently called a classification of the sciences or a classification of the problems of science and philosophy. I invoke both forms of expression because I wish to appropriate the ideas at the basis of both conceptions. That is, I am not classifying the sciences for the sake of the classification only, but because of the distinction of problems which I wish to make. Usually classifications have proceeded on the assumption of territorial distinctions, but I wish to include other considerations in the determination of their definition, and this distinction is the idea of problems as well as territory. In fact territory will be a subordinate matter of consideration. Objects to be attained are a better criterion of the distinctions involved in scientific and philosophical questions, though territory is often nothing more than a subterfuge for these.

The circumstance which has prompted men generally to classify the sciences has been the discovery that they are in some way related to each other. For example, logic and psychology have both to do with mental phenomena. But one of them, logic, has a much narrower field than the other, psychology, and at the same time also has a different problem before itself. It has to do with the ratiocinative process and seeks to determine the laws of its validity, while psychol-

ogy is not necessarily concerned with the validity of any mental acts, but may content itself with the determination of their laws and causes, while it also investigates more than the ratiocinative process and so will include perception, emotion and volition. Again sociology is in some way closely connected with history, economics and politics. Mechanics is often treated as a department of physics. Geology is generally assumed to be a branch of the same. Chemistry is sometimes treated as coördinate with physics and sometimes as a division of it. Such relations suggest a hierarchy of sciences and have given rise to their classification.

If I were concerned in the acceptance of some classifications and the rejection of others, it might be profitable to undertake a review of some of them, but as it is possible to assign at least a relative value to all consistent classifications it is not necessary to pursue an invidious task or to study the work of the past with a view to repudiating it. But I shall refer to two systems of classification, partly for the purpose of showing this relative justification and partly for appropriating the general principles at the basis of both of them. They are the classifications of Comte and Spencer.

Comte's system may be called the *serial* method of classifying the sciences because it was not his purpose to represent them in the relation of genus and species, but to conceive some of them in a relation of dependence upon others. He did not attempt any complete and exhaustive consideration of the special fields of human inquiry. He confined himself to the more general sciences and their relation to the problems which mainly occupied his mind as a student of politics or sociology, omitting those which had originated and sustained a philosophic interest. After recognizing the two fields of phenomena, organic and inorganic, he adopts the following as the order of relation between the general sciences: mathematics, astronomy, physics, chemistry, physiology, and social physics (sociology). He makes also the distinction between the abstract and concrete sciences which Spencer afterward adopts, but he does not make the use of it which Spencer finds appropriate. It is interesting to remark, however, that Comte, for obvious reasons, makes no mention of philosophy, metaphysics, or psychology. He conceived these as pseudo-scientific and would recognize nothing but what he regarded as legitimate fields of inquiry, he himself being the sole judge of what man should study. But in thus excluding certain problems from consideration with which men have actually occupied themselves, and in not specifying problems within the limits of the sciences which he does recognize, he has given

a very meager conception of the real interests of the human mind, legitimate or illegitimate, though the serial method of viewing the relations of the sciences is a most fruitful conception and capable of useful application. It shows both a kind of dependence of one science upon another and an incremental result in the dependent science which is important for attaining some idea of the progressive complexity of nature and knowledge.

Spencer adopts what may be called the *logical* method of classification. It is a division of the sciences into genus and species, and applies the principle of territory, in the main at least, as the ground of distinction between them. His classification is carried out with reasonable clearness and consistency in detail. It is far more exhaustive of the fields of human inquiry than most efforts of the kind and for the purposes for which it was conceived is as useful as any other system. Accepting the fundamental principle of division, which is territory, and the distinction between abstract, concrete, and abstract-concrete sciences, I would have no special criticisms to make against the classification, as I have already recognized the relative value of any consistent system of classification, as judged by the purpose for which it is made. But I do not think that the fundamental distinction between abstract, concrete, and abstract-concrete expresses the real nature of the difference between the sciences in respect of the problems which they actually attack. This, I think, is apparent from the place occupied in it by logic and mathematics. Their classification as coördinate species ought to imply a closer relation in subject matter than actually exists. It is like classifying foods under the heads of "animal, vegetable, and animal-vegetable." This is all very possible, but does not indicate any truly scientific principle of distinction. Besides, we could as well put ethics under the head of "abstract" sciences as logic and mathematics. I think that it will be found that ethics is quite as formal a science as logic and when compared with the practical problems which it is expected to solve will appear quite as "abstract." Many will question Spencer's right to make sociology a subordinate division of psychology, as mental states are not primarily social phenomena at all. They simply happen to include these as a part of the class, so that it would be more rational to make sociology an incremental science. But I do not care to be punctilious, as I wish to recognize what Spencer rightly sees. It is the fact which Comte's serial classification observed, namely, that sociology depends on certain psychological functions and phenomena for its meanings. But he did not observe that, as actually studied, it deals

also with a wholly distinct set of phenomena in the field of politics, history, and economics. If the meaning of sociology be determined by the principle of division adopted by Spencer, as it ought to be in the system, there would be less objection to its place assigned it, but the term would not have the meaning which students actually give it and which Spencer's own discussion of it in his Synthetic Philosophy assumed. Spencer's difficulty, and hence liability to objection, arose out of his attempt to give a classification which would satisfy two incompatible conditions at the same time, namely, an ideal and actual conception of the sciences. The manner in which the conception of the various sciences has developed prevents this from being accomplished. One or the other alternative must be adhered to. The classification must be avowedly ideal or avowedly of the actual conception of the sciences and territorial and problematical considerations must not be confused.

Now what I wish here to undertake is a combination of the objects indicated by the systems of Comte and Spencer, namely, a logical and serial classification of the sciences, or problems of human thought and action, in a manner that will recognize both territorial and relational facts at the same time. It will involve a complex system of connections and distinctions which have, no doubt, operated in any other way of looking at the question of classification to cause the real or apparent confusion of conception and definition. The important premisory remark, however, to be made at the outset, as a precaution against misunderstanding, is that the classification is based, not on any definite conception of the sciences as actually defined in general acceptance or usage, but on what the conceptions *must* be as determined by the principle of devision adopted. I shall not attempt to define the sciences or to classify them as their territory *is* defined, but as it *ought* to be in an ideal system endeavoring to indicate what the problems have been in the abstract. At the same time, I mean to have no quarrel with the accepted import of the terms as they have been historically developed. These may be granted their rights and uses where it is impossible to regulate the tendencies of evolution arbitrarily in the interest of a personal theory. We may define our problems clearly and then allow human interests to carry on the discussion of them in their own way according to the actual complications of phenomena. Hence the classification, so far as mere terms are concerned, may be treated as false, when measured by the actual conception of the sciences, or we may assume that actual definitions are wrong according to the ideal classification. I do not care which of these is done, if only the system

succeeds in throwing light upon the problems of human intellect, either by suggesting their variation from the ideal of thought or by opening up a way to reconcile the controversies that have spent more time on definition than the philosophical and practical interests of men justify.

I think we may reduce the fields of human reflective and active interest to three, in the widest acceptance of the terms. I shall call them the world of *events*, the world of *worths*, and the world of *causes*. This is, in expression at least, a slight modification of the division of Lotze, which was the world of *facts*, the world of *laws*, and the world of *worths*. The world of events which I have adopted for the first class of problems is coincident with Lotze's world of "facts," and I discard the term "facts," not because I have any objection to its Lotzian use, but because I wish to regard the world of "laws" as included in that of "facts" and to be subject to the same explanation as isolated "facts" or events. The very conception of "law" which was taken above indicates that it does not express anything but regularity of events and belongs to the same category of problems as unsystematized incidents. All three worlds as I conceive them are to be equally treated as "facts" in the wider sense of the term, and differ only in respect of the method of determining them or in respect to the tenacity of belief regarding them. The worlds of "worths" and "causes" explain themselves.

In the first of the fields thus circumscribed we wish merely to ascertain what the "events" or occurrences are which we have to observe and systematize. I shall describe this field as the *Phenomenological* problem. Explanation may be excluded from it, in fact, must be, as its object is only to determine the facts of existence. I shall subdivide this phenomenological field into two classes of subordinate problems, which I shall call the *Ergological* and the *Nomological*. I have been obliged to coin the word '*ergological*' for the purpose of distinguishing the question of the *laws* of events from the bare fact of their occurrence and unsystematic apprehension. I might have adopted the term 'pragmatological,' but, on the whole, seeing that the Greek term *τὰ ἔργα* was used to express facts, things done or doing, I decided for the former. It is intended to express the nature of the first problem of human interest, namely, the mere knowledge of the events which suggest, when known, the subsequent problems still to be considered. The nomological problem represents the demand for the *laws* of events, the systematic order of their occurrence, the determination of the coexistences and sequences of phenomena, as distinct

from their causes. Superficially, phenomena may seem to occur without order, and hence that order has to be a quest whenever it is not apparent at first. Ergological and nomological problems, therefore, represent two distinct fields of inquiry which can be further considered in the serial relation of the sciences occupied with them.

I shall describe the world of *worths* as representing the *ideological* problem. By this I mean the general field of *ideals*. The origin of the term and this conception of it are apparent without further comment. That such a field or problem exists is admitted without question. But I shall subdivide it into two subordinate types of problems which I shall call the *Orthological* and the *Teleological*. One refers to the ideals of truth and the other to those of action. By the orthological problems I mean the questions of *norms* or criteria of values in every field of human interest. By the teleological problems I mean the questions of *means* to ends which may be either ideally or actually adopted for action. In general they represent the field of the arts as distinct from the sciences. Perhaps it would be more correct to describe them as referring to both ends and means, as these are correlated conceptions.

The world of *causes* I shall describe as the *Noumenological* problem. I use the term to comprehend both *efficient* and *material* causes, and accordingly divide its subordinate problems into the *Ætiological* and the *Ontological*. The term is borrowed from the usage of Kant, as is apparent, but has not exactly the same import and implications. The special meaning of the term and the reason for the use of it are found in the fact that we need some expression for the mind's habit of seeking something that "transcends" the phenomenon to be explained, something that is not given *in* it though implied *by* it, and that may be of a different kind from that whose explanation or ground of occurrence is to be determined. Besides it is intended to express something more than "law." This will be apparent in the sequel of this work.

It is not necessary in this last class of problems, the noumenological, to assume that the field is a legitimate one. So far as the classification and general questions are concerned we may admit with Comte that metaphysics or inquiries transcending events and their laws is not a legitimate subject of human curiosity. But it is a fact that men have indulged speculation and inquiries which they have chosen to denominate as the world of causes, or facts and realities other than mere phenomena. All that the classification requires to recognize is that men have been curious to ascertain the existence of certain realities which they have supposed to be supported by the evidence and meaning of

phenomena. With this proviso as to the interpretation admissible regarding the third class of problems I may proceed to the tabular representation of the problems of science and philosophy.

CLASSIFICATION OF THE SCIENCES, OR PROBLEMS OF SCIENCE AND PHILOSOPHY.

	Phenomenological.		Ideological.		Noumenological.
	Ergological.	Nomological.	Orthological.	Teleological.	Ætiological and Ontological.
A	.....	Mathematics	.....	.....	Metrology
B	.....	Physics	.....	Engineering	Hylology
C	.....	Chemistry	.....	Pharmacy	----------
D	.....	Physiology	Hygiene	Therapeutics	Biology (?)
E	Anthropology	Psychology	Epistemology	Pedagogy	Pneumatology
F	.....	.....	Æsthetics	Art	.....
G	.....	Ethology	Deontology	Prattology	.....
H	Relig. Annals.	Sci. Relig.	.....	.....	Theology
I	Pol. Annals.....	Sociology	Jurisprudence	Politics	.....
	J	K	L	M	N

Before entering into any exposition of this classification and in order to prevent misunderstanding at the very outset I must premise the statement that no name in this table can have any other meaning than that which its place in the system and the principle of division predetermine for it. The classification, I repeat, is not an attempt to assign the actual meanings of the terms in any or all cases, but the meaning which they must or ought to have in an ideal system. This meaning may or may not conform to accepted usage in breadth and depth. All the concession that I have made to conceptions in existence is found in the place assigned to a name. In this I have taken that meaning which is nearest the import that the term obtains from the principle of division, and as near actual usage as possible where that is permissible, with one or two exceptions, as noticeable in *Biology* and *Politics*. Were it not for this proviso I should have to face the preliminary objection that many of the sciences involved are not conceived in their acceptable or accepted import, which a classification is usually supposed to recognize. Generally we classify according to a definition already adopted, but here I have adopted certain principles that predetermine the problems of human reflection and with them the conceptions of the sciences in the system. Hence I am in a measure endeavoring to determine what the definition of the sciences should be in a rational system of thought, without in any way prejudicing the interests that have developed definitions adjusted to practical considerations. With this explanation the reader will understand that I intend

to admit that actual usage does not always, if ever, entirely coincide, and may not need to coincide, with the ideal conception of the problems which I am trying to define. I can but approximate the ideal when accepted usage is the measure, and there will be a corresponding variation when the ideal is the standard. I shall consider objections later, some of which arise from the omission of sciences which the reader might think ought to be specifically included in the system.

As has already been remarked above, the classification is partly territorial and partly problematic. The divisions represented by the phenomenological, ideological, and noumenological problems are also territorial, this being the same for all of them, and are *logical* in principle. That is, the classification under them is a logical, and not a serial one, except as the latter may be made to articulate with it. It is the same with the subdivisions of each of these general classes. They are mainly problematic distinctions coinciding with a common territory in general, though marked by slight variations. The parallel lines of classification, represented by the letters from A to I indicate an identity of territory with a distinction of problems. That is, the sciences involved deal with the same phenomena but with a different object in view. The vertical lines of classification, indicated by the letters from J to N, represent the *serial* classification and involved a distinction of territory with identity of problems, and at the same time a *connection* of both territory and problems. To illustrate in both cases. In the parallel lines, Anthropology, Psychology, Epistemology, Pedagogy, and Pneumatology deal with the same general territory, namely, human phenomena, varying in content slightly at least, but representing totally different problems. In the vertical lines, Physics, Chemistry, Physiology, etc., represent different territory but the same problems for inquiry. The dotted lines indicate that there is no accepted name for the field or problem corresponding to it. The hyphenated line under Hylology indicates that this term may be, or should be, used to cover the field occupied by Chemistry as well as Physics. I have omitted Phytology or Botany, between Chemistry and Physiology, representative of the vegetable world, because there are no equivalents of it in any of the other corresponding positions, unless we accept Horticulture under the teleological. If desired this desideratum can be supplied by the student.

I have omitted certain sciences from the table because they may be considered as subdivisions of the general sciences mentioned. For example, it will be remarked that I have not included astronomy in the list. The reason for this omission is the fact that we may treat this

science either as a combination of mathematics and physics or as a subdivision of physics in the wider sense, which latter it really is, mathematics entering into both. We may thus subordinate, as is usual, mechanics, hydrostatics, thermics, optics, acoustics, etc., to physics, thus extending the logical divisions into the sciences classified generally in a serial form. Similarly we may deal with history, economics and politics, in the usual sense, as subdivisions of Sociology, as here conceived. Sociology is often defined and discussed as if it were a science coördinate with these, but this grows more out of the coördination of the men working in the subjects than it does out of the actual phenomena which determined the science. History, economics, and politics are undoubtedly social sciences, or sciences having to deal with social phenomena, and hence the right to have a general science comprehending them as departments of it. I think the conception which this table assigns to Sociology accomplishes this desired result, so that the sciences seemingly excluded are tacitly admitted to the system. By enlarging the table and specifying the subdivisions or departments of the general sciences in each case we could indicate more definitely the place and relation of omitted sciences. The same remarks apply to the omission of logic and ethics, except that the latter is actually admitted in the three separate sciences which usually represent the content of one. Ethics is often divided into theoretical and practical, and Mill suggested the title of ethology as preferable. He did this because of the influence of the positivistic view of things and was less inclined than the ordinary moralist to place as much stress on the idealistic view which sought to modify rather than to accept the existing status of custom. Mill was right, however, in desiring to have a place for ethology, if only he had admitted the equal right to imperatives, or what I here call deontological functions in the direction of conduct. But all these considerations, including the current divisions of ethics into theoretical and practical, make it feasible to recognize three problems, which are respectively called ethology, or the observation and systematization of human customs or actual conduct, positive morality; deontology, or the science of the ideal or duty, the ultimate and imperative end of conduct, and hence theoretical ethics; and prattology, or science of the conduct or actions which are necessary as means to attain the ideal and hence practical ethics. Logic has been omitted because it may be, and according to the conception taken in this work of epistemology, should be treated as a branch of this science. I conceive epistemology to be the science of the validity of knowledge, including perceptual, conceptual, judicial, and ratiocin-

ative processes. Logic is specifically the science of ratiocination, the last of the processes named, but deals with none of the others as a part of its problem. Consequently logic is tacitly recognized in the manner indicated.

The objections which will suggest themselves to the use of terms in this classification are founded on the differences of conception which various men have had regarding the definitions of the sciences. For instance, it might fairly be objected by some that jurisprudence is not an orthological science at all, a science of what ought ideally to prevail in the social and legal relations between men, but a science of positive law. It is true that the definition of this science has varied from the time of antiquity to the present and has been affected by the exigencies of thought in each age, as have nearly all the sciences. Ulpian regarded it as the science of the just and the unjust, taking practically the view here implied in the classification given. Later writers like Holland regard it as the science of positive law, but are careful to say that it is not "applied to actual systems of law, or to current systems of law, or to suggestions for its amendment," but is "abstracted from positive law." This modification of the general conception of it as the science of positive law brings the idea so near to that of Ulpian and so near to that which is implied by its position under orthological problems that even Holland might be quoted as sustaining the general idea indicated by the present classification. But even if it does not, I am not concerned with the adjustment of the term to that conception which has been influenced by the doctrine of evolution and inductive and "empirical" methods as opposed to the apriori, since I am endeavoring to indicate a problem which lies more closely to the historical meaning of the term than the ideas of those who discuss another question under the name of jurisprudence which they conceive as a sort of mixture of legal history and political questions which are branches of sociology as here conceived. But let me once denominate the problem involved by the term in a traditional meaning and the name may afterward be dropped in so far as investigation and discussion are concerned. I need not question the existence of the problem involved in the science of positive law, as I in fact recognize it as a part of sociology, but I also recognize an ideal problem in law which has to be the measure of social effort towards justice, and have chosen the term jurisprudence as suited to name it, when taken in one of its historical meanings. I may treat the term politics in the same way. I have already indicated that, in the accepted usage of the term, it represents a branch of soci-

ology, and hence I am not here employing the term, as scientific students use it to denominate their science. Readers will recognize that, in practical life and usage "politics" is a term that has come to denote the system of actions and instrumental activities which are occupied with the enactment and administration of laws. I have provisionally given the term that import in the classification, in order to get a particular problem recognized, and then am quite willing to drop the term from further consideration. I think also that it is nearer to the usage of the same term by scientific students than some of them may be willing to admit, since "political science" is an investigation of the practical instruments and means to the very ends which I have defined in the matter.

The most radical objection that would naturally be taken to any term is that of "biology" which has been classed with the metaphysical sciences! I have recognized this in the question mark after it. Biology in general, I might almost say in universal usage, is a sort of comparative physiology and phytology combined and as it is studied belongs to the "empirical" or nomological sciences. That is its proper import and I do not mean to displace it. But I have availed myself of its etymological meaning and the present tendency to admit that its investigations result in the assumption of an unknown force which is called "life" as distinct from physico-chemical forces on the one hand and from psychical agencies on the other, to indicate a metaphysical field coming again into recognition after it had been confined to the physico-chemical agencies for a long time. This is all that I would accomplish by the employment of the term in the classification. Though biology has pursued its studies hitherto in the nomological field it bids fair to land with a conclusion in the metaphysical, as it certainly will if it decides for a "vital force" of some kind that is neither physical nor psychical. This places it above pneumatology and below hylology, in so far as it has a metaphysical problem to solve. In the meantime it suffices to recognize that current definitions and conceptions of it are not discredited by this provisional assumption of its etymological import to denominate a final problem when the term cannot have a simple place in the scheme on its own natural definition as a comparative science combining two others. Objections to other terms would be dealt with in the same way, as the purpose here is to assume ideal meanings for the terms and to leave current usage alone without invidious insinuations regarding them.

Considering, then, that I mean only to apply my terminology provisionally and for the purpose of defining the various problems of

knowledge and as predetermined by the principles of division indicated, I may well escape the duty to express adverse opinions respecting prevailing ideas of what the sciences actually do in connection with the various human interests that have determined them. In actual usage and investigations the conception of a science is largely influenced by the mental and moral interests of the inquirer. For example, if a man is not interested in metaphysics and theology but is interested in the study of mental phenomena, he is likely to insist that psychology is an "empirical" science and excludes the problems of the former fields from it, and whether "psychology" ever comes to have that narrower meaning or not will depend wholly upon the extent to which investigators into mental phenomena actually adopt that limitation of their inquiries and lose interest in the other problems. If he is interested in other matters than the mere determination of mental phenomena and their laws and if it is necessary to use these phenomena for determining his conclusions he will introduce other problems than the merely phenomenological into his considerations and naturally define his science accordingly. It is precisely the same with any other science. Nomological, orthological, teleological, and noumenological interests inevitably become intermingled in the treatment of phenomena because human interests are stronger than the restraints of abstract and logical definition. A man studying the properties of radium is inevitably led into discussions of the theories of matter and so involves himself in metaphysical questions without troubling himself about the definition of his science and would also claim that it was no transgression of his science to do so, though he might not interest himself in the metaphysics of mind at the same time. A man studying the relations between mental and physical phenomena can hardly escape the consideration of problems which would not logically belong to physical science as usually defined. Consequently what we find in actual life, where the territory of facts is the same and the problems different, is that the limits of any science are not exactly determined except in terms of the interest of the investigator. Various problems are associated and articulated with the same facts and only as a man deliberately excludes certain of them from the consideration of others does any science acquire the limitations which definition gives them. When intellectual and moral interests conflict controversy arises in regard to the proper functions and province of a given science. But the fact that any man is not interested in a specific problem, even though it may be a reason for limiting a particular science by its exclusion, does not eliminate the problem from existence or legitimate

consideration. Hence I have endeavored in my classification to present the distinct problems of human interest with as close approximation to customary definition as the circumstances would allow, while not desiring to prejudice any actual definition of the sciences that complex speculative interests might wish to incorporate into the conception of a subject. Such a procedure minimizes the importance of definition and controversies about the limits of a science while it accomplishes, in the recognition of the problems concerned, all that both sides of opposing schools wish to maintain.

These answers to objections explain the purpose of the classification to bring out and make clear the distinction of problems even though it is not possible in actual reflection to keep the definition and conception of the sciences as distinct as are the issues involved in investigation. But there are other objects served by the tabular review adopted. I wish to call attention to the circumstance that the table represents from left to right the logical and properly chronological succession of problems. First we have the simple and unsystematized facts to catalogue. In this, the ergological question, we do not primarily take account of anything but the fact of occurrence. This must always be the first act of science and none other is possible or rational. The next proper problem is to ascertain the law which governs phenomena obtained by experience. Here we begin the problem of systematization. But at the same time the opportunity occurs for the mind to inquire for values or causes before this process of determining laws has been undertaken, and we have an illustration of the way in which unsystematic reflection arises and may originate confusion in results. But when indicating that the proper order of procedure is the determination of laws after ascertaining the facts or phenomena I mean to describe *scientific* method, not the actual order of every one's reflection. But the nomological problem should follow, and scientifically does follow, the ergological, and determines some sort of order and unity in phenomena. We may disregard all metaphysical questions of causes, if we desire, in so far as those of mere coexistence and sequence of phenomena are concerned, since many of the "practical" matters of life may not be necessarily concerned with any other result. How far this is either possible or useful will be the subject of later consideration. But it is important to observe that in this nomological problem no process of selection of phenomena, which takes place to the exclusion of others on the basis of values, can ever be justified. The classification of events is based upon that of distinction in kind without regard to value, while value will be the criterion in

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ideological questions. In the nomological problem we must treat all facts alike, as we are seeking the uniformities of their occurrence and not their distinctions of value alone. Good and bad, normal and abnormal, beautiful and ugly, are not the first qualities concerned in their classification, and are explained, or their laws determined, without reference to ideal considerations. But in the orthological problem we have to deal with criteria of values. Validity is here the fundamental issue, that is, the choice of facts or phenomena to be estimated above or below others in practical conduct and adjustment. Here utility, not truth, is the standard of interest and the line of demarcation between phenomena will not coincide with that which determines the nomological problem. Then finally comes the teleological question of *means* to the ends orthologically determined. The last problem is thus the realization of our ideals by a determination of the necessary means to their accomplishment.

The positivist or phenomenalist would stop at this point and admit no other subjects of investigation into his system. For certain purposes I am willing to admit that it may not be necessary to go further or inquire into anything else. Of this again. But the human mind has insisted on speculating about other real or imaginary problems, and I have chosen to denominate them the noumenological, as seeking other facts than mere phenomena to satisfy its curiosity, and so I make the conception convertible with the term metaphysics. I repudiate Kant's use of the term metaphysics as wholly mistaking the problems which had presented themselves to the human mind and as an endeavor, or a tendency if not an endeavor, to confuse sane people by representing as legitimate what the main thesis of his system had denied. In the conception of this classification I mean to use the term metaphysics and causal or noumenological as convertible and as denoting the metaphenomenal or the transphenomenal. There may be no such thing as a metaphenomenal reality, but I have nothing to do with a fact of this sort when trying to describe the problems with which the human mind has actually occupied itself. We may deny that the problem is legitimate or soluble, but we can neither deny that it has existed nor use its phraseology for legitimate conceptions after discrediting the ideas for which it has always stood. I shall therefore use the term metaphysics to define a real or imaginary problem without implying its legitimacy or illegitimacy, but a problem of something more than mere phenomena.

The special sciences or disciplines under this head are metrology, hylology, pneumatology, and theology. I should have to include

biology with the qualifications already stated. They represent the problem of the existence and nature of realities other than mere events, or phenomena as represented or representible in sensory experience. By metrology I mean the metaphysics of space and time, such as their nature, dimensional quality and relation to other realities, and as principles of continuity and individuation, determining all the applications of mathematics. Following this on the serial principle of Comte is hylology, representing the problem of the existence and nature of matter and so including all such speculations as the atomic theory, the vortex atom theory, the theory of ether, the ancient, the Cartesian and other theories of a *plenum*, and the modern speculation based upon electrons and ions. Pneumatology represents the problem concerning the existence and nature of the soul, of a reality other than the brain or organism to account for the facts of consciousness. Theology seeks to determine the existence and nature of God, or an Absolute assumed to underlie and control the whole universe of phenomenal or other dependent reality.

These speculative inquiries or sciences, if we may call them such, are given in the order of their dependence and certitude. Space and time represent the first data whose certitude seems not to be open to question of any kind, though their nature may be subject to discussion. They represent the static universe, as they involve no change or phenomenal modes. In the next stage we have matter whose conception is the reflex of the mind's consciousness of certain phenomena which are supposed to have this center of reference as a subject of the world of change, a substantive background which we agree to call matter. These phenomena which suggest such a background are comprehended in certain changes or activities which require us to suppose something other than space or time as their ground. If there were no phenomenal changes whatever we should have a universe altogether static which we could not distinguish from space and time. But the existence of certain facts which cannot be ascribed to the static realities of space and time, but which are yet conditioned by them, at least in certain manifestations, creates the necessity for supposing a reality which we conceive as of the substantive sort in addition to space and time. Now the most important thing to observe at this point is the limitation which rational and scientific method places upon reflection at every stage of its procedure. After we have accepted the existence of matter to explain a given kind of phenomenal change the law of parsimony requires us not to admit the existence of any other type of reality, just as space and time permit none other unless dynamic facts demand it.

Our proper scientific duty is to explain all associated phenomena by the same cause unless there are sufficient reasons for assuming other realities. That is to say, unless adequate reasons arise, we must explain the phenomena of consciousness as functions of the brain or organism, just as we do digestion and circulation, because they are associated with it in the same way. Hence pneumatology, whatever place it may have in a classification of theories and problems, will have no real place of a legitimate sort in the system of speculative thought unless we have evidence either that consciousness is so different from physical events that it cannot be explained by the same cause or that it exists independently of the material organism. Pneumatology is conditioned upon the existence of facts that require us to suppose something besides matter to account for them. But as long as consciousness is associated with a physiological organism both the evidential and the explanatory problem will create the same relation between hylology and pneumatology as that between physiology and psychology. The relation between pneumatology and theology will be analogous. The existence and nature of any other higher intelligence than man in the universe, especially according to the results of evolution, will depend, first, on the discovery of phenomena for which matter cannot supply an explanation, and, secondly, upon the discovery of a mental reality in man other than the brain to account for his consciousness, and as an indication that matter is not the only reality in existence. Both the immaterial and the spiritual must be decided *in* man as a condition of getting the spiritual beyond him, that is, as a condition of proving the existence of God. Whether any such result can be achieved it is not my purpose to assume or assert in a classification of problems. I am only defining the issues as they must be conceived in a scientific system. It places theology as the last science in both its nature and certitude, the last problem which man has to solve, if it be legitimate or soluble at all.

It will be noticed also that there is but one vertical column of sciences under the division of ætiological and ontological problems. The reason for this is that I should have been forced otherwise to coin terms for all instances except theology and pneumatology. The term pneumatology exists but has no general current use for a special problem, and even when it was used in scholastic philosophy it did not always, if ever, have exactly the meaning which I ascribe to it here, except in a general way. Consequently I have been content with single terms for two sets of problems which can be ideally distinguished, as in all the other subdivisions, namely, the evidential and

explanatory problem of the existence and the unifying problem of the nature of certain realities. Actual custom has embodied all discussion of the noumenological problems, both ætiological and ontological as defined here, under the general head of philosophy or metaphysics, and no effort has been made to specially distinguish one problem from the other. In fact, it might even be said that the noumenological problem is not consciously admitted to be an object of legitimate or possible quest, especially among those who are devout worshippers of Kant. All that can be claimed, in so far as conscious theoretical reflection is concerned, is that the noumenological problem is tacitly assumed in many of the conceptions and speculations of human thought. The main thing contended for is that the inquiry regarding the existence and nature of any realities or facts other than phenomena shall be kept distinct from the objects of the phenomenological and ideological sciences. I shall denominate this problem as that of metaphysics and shall intend by it to include all the questions involved in the separate disciplines under the noumenological division, assuming that ætiological and ontological questions are aspects of the general problem, or concern both the existence and the nature of transphenomenal reality. These must be further explained.

The term "noumenon," or noumenological, is an unfortunate one. It suggests all the difficulties, confusion, obscurities and dubious problems of Kant's "Ding an sich" which was "unknown" and "unknowable," though it was strangely asserted to exist. I do not mean here to import into the problem which I have indicated the conceptions which defined the term for Kant. If I had to do this I should repudiate the term altogether as only calculated to produce intellectual anarchy. But I do wish to recognize that Kant's distinction between noumena and phenomena, if rightly defined and qualified, and when cleared of the confusion created by so much irresponsible and dogmatic talk about the "unknowable," has an important function for human reflection. Hence I use the term "noumenon" here to denote indifferently the cause and the ground or subject of an event or phenomenon. I might even rely upon one side of Kant's own system to support this recognized use of the term, as his conception of the action of something upon the subject in sense, "durch Kräfte," and not the sensation itself, as well as his whole doctrine of substance, distinctly assumes the idea here advanced, and it represents a transphenomenal fact. I mean that the distinction between ætiological and ontological shall be convertible with that between sufficient reason or efficient cause and that represented by the principle of identity and difference

which, if we like, we may denominate the "material" cause. Consequently I shall mean by noumenon or reality any fact whatsoever which transcends events or phenomena that may be the subject of investigation and hence explanation by a center of reference commonly expressed in a term for a substance or subject of attributes. Whenever we recognize an event, activity, change, or phenomenon, which we may conceive as a function of something, or, if you like, as an attribute of a static or dynamic something, we adopt some term to indicate the existence of that center of reference which we make, in some sense of the term, to be other than the fact so referred. For example, if we discover certain events in connection with the behavior of the nitrogen obtained from the air and different from the qualities of nitrogen obtained from organic compounds we suspect the existence of a new substance and investigation shows that this new subject exists. The name *argon* is adopted to express it. This is not conceived as a mere phenomenon, because, if it were, there would be no reason for detaching it from nitrogen. But the fact that certain phenomena demand a subject or substance to which they belong determines, in this isolation of the new phenomena, that we shall admit the existence of a new substance. It is the same with absolutely every substantive concept we have. They are all centers of reference for various phenomena or attributes which do not exist alone. This is the process by which the very conception of matter has been formed. We observe certain events and uniformities of activity, or attributes, static or dynamic, and refer them to a subject or substance which we choose to call "matter." It is not the phenomenon or phenomena, but the ground of it or of them. Whether we have the right to suppose any such thing is not the question, but whether we actually do it or not. I am simply indicating the facts which give rise to certain modes of thought and speculation and showing that they apply equally in what is called "physical science" as in what passes for "metaphysics." I regard it as a metaphysical procedure wherever it occurs. Hence by noumenological inquiries I mean simply the problem of ascertaining whether there is anything beyond the event or phenomenon which we observe in experience, and this reality other than the event will be assumed or accepted on every occasion on which the evidence goes to show either that the fact does not explain itself or that existing assumed realities will not explain it, as in the cases of argon, radium, etc. Such realities are simply the permanent centers of reference, subjects or substances which have these events or activities as their modes of behavior, functions, attributes, properties, etc. The nou-

menological problem, therefore, is the only question of determining evidentially whether any such thing or things exist besides the events to be accounted for. Besides all substantive realities of a specific sort, we have in speculative philosophy various representatives of this process in the general term "matter," and the more specific terms "ether," "soul," "God." The recent doctrine of "energy" as a substance shows the same inevitable tendency.

After the mind determines upon the fact that there is something besides the mere events or phenomena of observation, if there be more than one reality supposed, it seeks to ascertain their "nature" in terms of comparison with each other. This is what I have called the ontological problem, using that term in one of its scholastic meanings to denote what may be called a "material" cause of things as distinct from the efficient, active or creative cause. If there be but one kind of noumenal reality, that is, if absolute monism be the accepted doctrine, the ontological and ætiological problems will practically coincide. In that case the only criterion of what a thing "is," or what its "nature" is, would be what it *does*, that is, its modes of action or properties. In the last analysis, as I mean to show later, the "nature" of anything and everything must be determined in this way. But in a world of multiplicity, whether phenomenal or noumenal, comparison of realities is possible, while in a purely monistic system this cannot be instituted for determining an ontological unity and diversity not already assumed in the primary reality. But if pluralism be assumed the question of identities and differences arises and the ontological problem will be to find such "unity" as is possible by reducing the number of differential realities as far as possible. All classification by genus and species effects this. In the physical sciences, at present, this process has reduced the number of compound or complex realities to a more or less definite number, and the number of "elements" to seventy or more, so far as known. The ætiological problem may not take us beyond a chaos, inasmuch as it requires only the postulation of a cause for each event and unless there is some way of unifying the system by the principle of identity in some form, the world will remain a chaos. Ontological comparison, reducing the number of kinds to the smallest possible, gives us, in a pluralistic system the greatest possible "unity" with the least possible diversity. In the last stage of inquiry we may find that even the elements or atoms are but one in kind, as a recent doctrine of the atoms maintains, but even with this pluralism of some kind prevails, and only monism of the most absolute type can escape making the principle of identity and difference

coördinate with that of causality. But until that condition of fact is reached the ontological and ætiological problems will remain separate, and it will always be required of us that we first prove the existence of noumenal reality and then investigate its "nature" in relation to other noumenal realities. Whether it is legitimate to hunt for or assert the existence of anything but phenomena and their laws I am not maintaining, but only classifying the reflective ways of thinking in all fields of investigation whatsoever. They are not peculiar to what is styled, often with contempt, "metaphysics," but are equally characteristic of absolutely all physical sciences when they speak and think of atomic or other realities, which they assume to be the proximate or ultimate center of reference for phenomena, functions, attributes, or properties, etc. If this procedure is legitimate in the physical sciences it is also legitimate in what are called the metaphysical sciences, and if it is not so in the latter it will not be so in the former. *Falsus in uno falsus in omnibus.* Contemptuous banishment of it in one field must lead to it in the other, and its admission in one qualifies it for recognition in the other.

The importance of this classification of problems lies less in the mere delimitation of problems as such than it does in the manner in which it prepares the way for pacifying the animosities of certain traditional controversies. The conflict between "metaphysics" and "science" in modern times has hardly been less heated than the old one between theology and science. Both have been encouraged by the limitation of "knowledge" to "phenomena." One school has insisted that the most important truths are associated with the determination of ultimate realities, and the other refused to recognize the value of any such truths because it maintained that such realities could not be known if they existed. But even if they were in any way "knowable" the positive or phenomenal school, viewing the discussions of scholasticism as interminable and fruitless, found no way to keep clear of such controversies but to discredit them and to emphasize the value of studying facts. The assumed or declared supremacy of the inductive method, as against the deductive which was supposed to prevail in the barren disputes of scholasticism, encouraged suspense of judgment in regard to the "nature" of things until their actual behavior was known, and this method required at least the provisional suspension of "metaphysical" reflection. Contentment with the study of "phenomena" alone inevitably led to the neglect of all the "metaphysical" speculations of the period against which the new movement was a protest. The consequence was that men more and more became

satisfied with the investigation of phenomenological and ideological problems and the noumenological or "metaphysical" were relegated to the limbo of fancy and dreams. It was found that some sort of progress was possible by abandoning interminable discussions about the "nature of things" and theological quiddities, and devoting effort to the patient study of facts. Knowledge was thereby increased and the conditions of life improved. The human mind naturally inclined toward the methods that actually achieved some conquest over nature and mystery. Hence the whole tendency has been toward the primary importance of knowing what phenomena are and their laws while all other alleged problems were discarded. Now it is a fact that many of the affairs of life are not affected by "metaphysical" conclusions one way or the other. The interests of agriculture, of industrial manufacture, of trade, of architecture, are not affected by the question whether Berkeley or Lucretius is right about the existence or nature of matter. When I have to sow my crops for bread what do I care whether "matter" shall be resolved into the manifestations of spirit or not. The relation between my food and the sustenance of life is the same on any conception of "matter," whether it be resolvable or not into vortex atoms of ether. None of the speculations of philosophers in any way affect the economic or material affairs of human life as conditions of its support. The discovery of this fact and the necessity of respecting it for the various needs of civilization, after the break up of scholasticism, forced mankind to pay attention to the actual facts and laws of things to meet the practical wants of the age. The decline of "metaphysics" was inevitable, as it could lay claim to no value but a spiritual, whatever that meant, and the progress of science was accompanied by such a tendency toward materialism that a spiritual view of the world has become well-nigh impossible, except to those who like to fool themselves by quibbles about "matter" and vague misty speech about spirit in the impenetrable and foggy wilderness of Kanto-Hegelianism. In so far as the phenomenalist had the ordinary practical affairs of life in mind, the adjustment of human events to actual facts, he has been right. All our relations to the external world, our objective morality or the attainment of the interests which are determined by adjustment to "natural" forces, are realized by conformity to facts and not to theories about these facts. It matters not what gravitation is, whether it is a pushing or a pulling influence, a material or an immaterial force, my behavior toward the conditions supposed to be affected by it must be the same, assuming that I mean to preserve my life at all. I must have a regard to the seasons and their

order if I am to protect myself against the risks of their changes, and this without regard to the question whether the cosmic order is either proximately or ultimately a spiritual one. The actual phenomena of experience and their laws, the uniformities or variations of their coexistence and sequence, are the first considerations which man has to respect in the struggle for existence, and philosophic theories have either to assume a position of minor importance or be disregarded altogether. If man had a more universal tendency to suicide, cosmic and other theories supposed to determine the value of life and the duty to preserve it might have more importance as well as power to affect conduct. But the instinct of self-preservation is so strong usually that the problem is not to supply adequate motives for self protection and obedience to natural appetites, but to so regulate these instincts and their exercise that the end of self-preservation is not surreptitiously defeated. A knowledge of facts is the main thing wanted in the regulation of this condition of affairs. It is not theories of a transcendental world that are necessary for the sustenance of the life and conduct which are supposedly necessary to make philosophic belief possible and correct, but it is a knowledge of the actual behavior of the physical world and the relation of this behavior to my welfare as a physical being. I shall not deny a place in the totality of human development to philosophic reflection and metaphysical theories, but they are not the primary considerations in the regulation of life and conduct. Certain conditions have first to be satisfied in order to make such theories possible and effective, and these conditions are a knowledge of actual facts, of phenomena and their laws, in order to determine the situation to which my actions must be adjusted, that is, in order that, from the uniformities of coexistence and sequence, I may see before and after and thread the labyrinthian path of nature without risk of being swallowed up in its abysses or of conflict with surrounding forces in the narrow course which I have to follow. So far the positivist and phenomenalist are right. The primary duty of man is respect for facts nearest him and those facts whose certitude is easiest of establishment. He begins his knowledge with experience of facts or phenomena and he cannot rationally philosophize until he observes these. Much of his conduct must be decided upon both before he is able to philosophize and without regard to it. Besides whatever philosophy he adopts it will depend upon his previous knowledge of what the phenomena and laws of "nature" are, as all rational philosophy or metaphysics must be an explanation of facts, or be justly accused of being sheer invention.

What positivism or phenomenalism has stood for, whatever the mistakes and errors that may be attributable to it, is primary respect for facts and sympathy with the intellectual movement initiated by inductive and scientific method. The genius of this tendency was soon realized and its antagonism to scholastic speculation was so apparent that, as in all revolutionary impulses, the actual work of previous periods was neglected in favor of the prophetic promises of a new world of interest and hope. Consequently in eradicating the false method of speculative philosophy, the *a priori* assumptions and reasoning of scholastic thought, from which even Kant did not wholly free himself, the human mind took the "empirical" tack toward an exclusive regard for phenomena which seemed to be its only hope of liberation from the shackles of dogmatism. The new movement, however, simply esconced itself comfortably in another dogmatism about the limitations of knowledge to "phenomena," and in its talk about "experience" made no provision for the elasticity and ever-extending area of these boundaries. While it might be true enough that certain truths were not demonstrable by known facts or phenomena, there is nothing in the conception of "facts" or "phenomena," or the idea and limits of "experience," to prevent the discovery of data that may prove what one age or stage of reflection had no rational grounds to believe. Hence the scholastic dogma of unlimited knowledge was simply met by another dogma about its limits, and these limits involved the assumption that no one could know anything more than the individuals who were so confident about phenomenalism. But there are interests and instincts in human nature which extend far beyond the mere needs of adjustment to facts or self-preservation. Intellectual curiosity as to the explanation of phenomena is an instinct quite as strong as any desire to live, at least in some individuals. We need not go farther than the atomic theory or the vortex atom theory of matter to see this, and if we are to indulge our intellectual appetencies at all, we are not likely to limit them to the narrow confines to which Comte and his school, if logically consistent, must reduce them. Our intellects interest themselves in other pursuits than those of making bread or escaping death in the struggle for existence, and the phenomenalist may as well recognize this. What he ought to have seen was, not that all metaphysics was wrong, but that the prevailing systems were wrong in their method, and then to have based the value of his own point of view on its inductive method rather than on the limitation of "knowledge" to "phenomena," a term quite as equivocal as any other in philosophy and which can be used as well as any other to call back

into being the very philosophies which it had been used to dispel. It was a reform of method that was needed as much as that of material results, and it would have conduced to less error and more progress away from controversy if that tack had been taken instead of inviting such a fruitless discussion as has followed in the wake of the Kantian movement, a kind of phenomenalism that carries on a sort of hypocritical flirtation with every imaginable form of dogmatism. I hope, therefore, that the above classification of problems has enabled me to take a just view of both phenomenalism and transphenomenalism, if I may so call the study of metaphysics, admitting legitimate claims to both while I assign to phenomenological problems the primary importance as conditions of sane metaphysics and as evidence that "scientific method" is the only one which I shall recognize as qualified to determine truth of any kind. Method of investigation is the first reform needed in philosophy and it would have occasioned as much advance in that field as in science, if it had been demanded instead of ridiculing all metaphysical reflection.

Two things will now be apparent in regard to the results of this classification of the problems of science and philosophy. The first is that it recognizes all that the "empiricist" and phenomenalist can rightly claim in the nature of knowledge and method of inquiry. The second is that the classification defines the conceptions of epistemology and metaphysics in the way that this work means to treat them. Epistemology is conceived as a science of validity in the processes of "knowledge" and not a system of philosophy, nor a propædeutic of philosophy or metaphysics any more than it is of physiology, psychology, sociology, physics or chemistry. It is usually treated as if a metaphysics were not possible until one had formed a theory of "knowledge," but so far from the theory of "knowledge" being an absolutely necessary condition of a metaphysics, I shall treat it only as a clarifying help in such a result, important to complete, not to condition all philosophy. We cannot refuse some conditioning influence on other thought to the investigations which aim to determine the criteria of truth in the processes which have to be assumed and used in all inquiry, but what I maintain is that it does not specially condition metaphysics more than it does all other forms of investigation and reflection. It is in fact not the "condition" of any of the disciplines, being itself conditioned by the same general assumptions and principles that govern all the sciences. Modern philosophers, however, since Kant have a habit of conditioning everything on the results of epistemology and hence of demanding that every system of metaphysics predetermines its

rights by the inquiries which are instituted to ascertain the nature and limits of "knowledge," begging the question all the while in their confusion of the object with the process of investigation. It starts with scepticism in regard to systems of philosophy and either forgets to apply this method to epistemology or fails to see that unless it abandons this method it can obtain no results in its own field. If the mind is not competent to investigate metaphysical problems until it has obtained a theory of "knowledge" it is not competent to form a theory of "knowledge," while trust in its faculties in epistemology only justifies the employment of the same powers in metaphysics or any other science without regard to the conditioning relations of the theory of "knowledge." We cannot distrust the mind in its metaphysical functions and implicitly accept its judgments in epistemology. The same functions are involved in both, a fact indubitably proved by the universal tendency since Kant to make epistemology more or less convertible with metaphysics, or when not this, to regard it as predetermining the view which we take of things. But if we are competent to investigate "knowledge" we are also competent to investigate metaphysics, and whatever limits are assigned to "knowledge" in the latter must be admitted in the former, and if we start with scepticism we must end with it. Consequently the real condition of philosophy is the same in both fields. It is not the dependence of metaphysics upon the determination of the limitations of "knowledge," but the application of scientific and critical methods to both. It is scientific method, not the theory of "knowledge" that conditions truth about things. I therefore regard epistemology as simply one of the sciences coördinate with the others, and metaphysics, if allowable at all, as simply the most fundamental of all investigations of phenomena.

But now a most important fact comes to view which I have purposely avoided thus far. It is the relation between the metaphysical sciences and the phenomenological. The tabular representation indicates, by implication at least, that they are the last in time in the process of inquiry. This is not necessarily the case. The chief reason for placing them in the last column, as if all other problems had first to be solved, was consideration for positivism and the doubts that might be entertained as to the value or even possibility of metaphysics of any kind. But the fact is that conclusions in metaphysics are so closely associated with nomological results that temporally we may not be able to distinguish "causes" from "laws." The same conditions and criteria that determine one often determine the other at the same time. Besides we have often assumed the nature of the reality at the basis of

phenomena before we investigate their laws. The application of the principle of causality is so natural and inevitable from the earliest period of conscious reflection that its results are often anterior to the question of laws. Hence we often have a system, always I might say, before we begin the nomological study of phenomena. Then, as I have just said, when this investigation has begun the close connection between the two problems in respect to the method of determining results is such that the same conditions often decide one of the problems that decide the other. That is, in determining the laws of phenomena we at the same time determine their causes. The uniformity of coexistence and sequence is, in fact, a criterion of what the cause is when the assumption of any reality other than phenomena is once made, so that only where we suspend judgment as to the causal agent and investigate the uniformity of events in the abstract do we distinguish evidentially or otherwise between the nomological and the ætiological problem. This is in the critical and systematic procedure of investigation where the cause is less evident than the fact and law of phenomena. But quite as often the evidential solution of the one is or indicates the solution of the other. Hence in actual method the phenomenological and the noumenological problems may go together, though this is not necessarily and in all instances the case. It depends wholly upon the particular metaphysical problem concerned. One stage of it may be assumed before the nomological investigation begins and another may be consequent upon its solution or coexistent with it.

It may be necessary to define and explain a little more clearly certain aspects of the noumenological problem which I have not mentioned, and which will serve to justify the recognition of it as an object of rational interest. It will be observed that I have divided it into the ætiological and ontological questions, or those of efficient and material causation, the term "noumenological" standing for *cause* in general. This implies that I here use the term "cause" as a genus for two types of explanatory reality, the ætiogenetic and the ontogenetic, the originative and constitutive. The significance of this will appear when we remark the way in which all metaphysical beliefs arise.

Facts or "phenomena" suggest something to which they are related. It might be better to say that they "necessitate" it, but it will serve all purposes not to state it any more strongly than "suggestion." Moreover, in so far as our problem is concerned, I do not care how this process comes about or whether it is legitimate or not. The preliminary step to the consideration of validity is the fact that we do it. We invariably refer "phenomena" to their causes or

grounds and the act involves certain consequences. The first and simplest reference which we give to any "phenomenon" is to its "cause" in some sense of that term. The most primary conception of this "cause" is that of a *thing* and the "phenomenon" is its property. This is a conception of "cause" which has prior value and probably has prior existence to that of antecedent in a series of events. We finally name the thing a subject or substance, and the properties its attributes, the terms "property," "quality," and "attribute" being interconvertible. The reason for supposing a subject or substance of any kind is simply the fact that we find ourselves forced in some way to account for "phenomena" or events, as not unsupported altogether or as facts spontaneously originating. In the later development of intelligence we find them existing in a double relation. The first is in relation to a ground or subject of which they are the action or function, property, attribute, etc., and the second is in relation to an antecedent or originative or efficient "cause" which makes them occur without necessarily determining their nature, this latter fact being determined by the subject in which they occur. But the first reference which the causal judgment makes is to a ground or subject. Events are not supposed to be groundless or incidents having no reality of which they can be modes of action. For this reason, good or bad, we insist that they *hang* upon something, or attach to something of which they are functions. To illustrate, take a ball in motion. The motion is a mode of action and cannot occur apart from the thing which we call the subject, even though we may say that it is transmissible from subject to subject. It is a condition of the ball that is an alternative to another condition called rest, the ball being the thing that is capable of being in either condition. The motion or rest is a relative fact that has no meaning or possibility apart from the thing to which it is related or of which it is a condition. Neither the motion nor the rest can exist unless it is a condition of something in motion or rest. The necessity of this way of thinking is apparent in the hypothesis of the existence of ether. The ether was posited to account for the transmission of light. If motion can subsist apart from a subject, there is no reason for supposing the existence of an ethereal medium for the transmission of light from the sun to the earth. If it could possibly be subjectless it would transmit itself from point to point without a medium. The philosopher, therefore, who would insist upon the independent existence of motion would remove the basis of all physical "science," as concerned with realities other than "phenomenal" coexistences and sequences. It will be the same with all the properties of reality which

are treated as modes of motion in physical science, and which are spoken of as transmissible. It is all the more true of the intransmissible properties or functions of reality. They are also facts that imply a reality other than themselves, and so far as validity is concerned it matters not whether we call the process of reference involved "empirical" or "a priori." No man escapes the problem of validity by pretension of empiricism nor does the bare fact of nativity establish this validity, though it does imply inexpugnability and the necessity of conformity to its demands. If that is tantamount to validity the fact will have to be accepted. But I am at present concerned with the fact that the process is a universal one in the exercise of human intelligence and on that account requires adjustment to it.

Let me put the process again in another way. Facts, events, actions, properties, "phenomena" belong to something, and this reference is the noumenological process in its first stage. The "phenomenon" is transcended in finding that to which it belongs as a function or attribute, the subject being what I may call the reflex of the conception that what we "experience" is "phenomenal" and so relative. That is, "noumena" and "phenomena" are relative or correlative terms. Neither is legitimate without the other. To "know" one is to "know" the other. We cannot conceive any fact as a "phenomenon" without implying the existence of the "noumenon." We may go on and ask what this "noumenon" *is*, and we may find that it is either another "phenomenon" or we may find that it is not "phenomenal" at all. It is once and always the implicate of our discovery that the given is not self-explicable. On any meaning of the term this is the case, whether it is conceived as an "event" or as an "appearance." An event is a fact beginning in time and implies an antecedent of some sort, unless both science and metaphysics are to be rejected. An "appearance" is the presentation of some reality, unless it is an illusion, and even this has no meaning unless a reality is granted for determining its nature as an illusion. But this aside, the "appearance" is the presentation of something, whether it is of the nature apparent or not, and we do not escape metaphysical implications by calling any thing a mere "phenomenon." If it were not a relative term the case might be otherwise. But it denotes either a related or an unrelated fact. If it denotes a related fact, it implies a "noumenon"; if it denotes an unrelated fact, it is itself the "noumenon," so that we must either draw no distinction between the terms or we must grant that "noumenon" is just as legitimate a term as "phenomenon," and that one is just as much "known" as the

other. What is absurd in the case is to say that one is "unknown" and then to limit this "known" by that which is nothing for "knowledge" and to exclude the correlate from that which is avowedly relative!

Accepting, then, as both necessary and as the first stage of reflection that a "noumenon" or subject is required by what we regard as "phenomena," functions, properties, etc., no matter whether it is more than the subject of consciousness or not, we have satisfied the demand for a "cause" of some kind. At the outset we do not require to distinguish in the case, but only to see that the admission of "phenomena" involves a subject or ground. Now if there is only *one* cause, subject, substance, or "noumenon" in the universe, as with the Eleatics and Spinoza, all multiplicity is "phenomenal" or modal. We should have to explain every event in that case precisely as Spinoza did, namely, as a mode of action by the Absolute. The efficient cause would be the absolute and there would either be no occasion for assuming a material cause or such a cause would be practically convertible with the efficient and express the nature of the action without implying either identity or difference of any kind as compared with the subject, though investigation might find the modes one or the other in a greater or less degree. In this monistic view we would always have to use the term "cause" to denote a subject in action and not as an antecedent event, nor an antecedent of any kind, except as we find the subject to antecede certain of its acts or functions. There might even be no change or progress in such a reality. The "universe" might be either dead and inactive, in a static condition pure and simple, or in a course of actions that involved no change of direction or form from the original state. In this case the subject would be the *logical* prius of its attributes or states. But this reality might be the center of incessant, or even only occasional, change and evolution, the agent of events, functions, and actions that are free from both a static and a dynamic inertia, if we may use this phrase. In this case the subject would have to be regarded as the *temporal* prius of all changes or variations from any given static or dynamic condition. In this way, "cause" would acquire a temporal significance as implying in some sense an antecedent to that which it explained.

But for various reasons the existence of multiplicity of any kind gives rise to the conviction that there is a corresponding multiplicity of centers of reference, of subjects, noumena, substances, whether we choose to regard them as ultimate or not. The main fact of difference in the modes of the real is the cause of this tendency, though reflection

may show that difference of modal action or qualities is quite compatible with unity or singleness of subject. But various needs of thought and action lead us to suppose a multiplicity of realities for the "phenomena" which we observe, instead of remaining content with the uno-monistic point of view which the Eleatic and Spinozistic systems adopt. The simple reason for this is that no proposition so abstract as that which describes the nature of things monistically can easily, if ever, be applied to the multitudinous details of existence with any more intelligibility than that of special Providence. As a consequence we have various kinds of substance which we treat as either simple or complex. If we go to the physical sciences we have the atoms and elements for our illustration of simple substances. They represent a pluralistic point of view, even if inquiry proves them modifications of some single ultimate reality. The terms matter and ether are also more general names for substances that represent a plurality of some kind. In the field of complex subjects we have the many substantive terms which classify the manifold individuals of the inorganic, the vegetable, and the animal kingdoms. "Men," "trees," "stones," "water," etc., are illustrations and each individual under these classes will represent the same conception carried out to the *infima species*. I am not maintaining that each center of reference or subject is an absolute of any sort. So far as the present problem is concerned they may or may not be this. It is merely a fact of "experience" that complex realities are "phenomenal," transient, or dissoluble into elements more permanent than themselves, and not a necessity of complexity, as the doctrine of inertia shows. We may require from the facts of change to reduce all complex substances to simple forms and these in turn to one ultimate reality which we choose to call the *one* absolute, but I am not concerned with the question whether this shall or shall not be done. All that I require to recognize is the invariable fact that men have admitted the existence of certain multiple centers of reference, or subjects for "phenomena," and we may or may not regard them, according as facts determine, as more than relatively permanent centers of reference, to appropriate a conception of Lotze as descriptive of them. Whether they are or are not more than relatively permanent is a problem subsequent to the question of their existence and of the fact that we uniformly conceive them. I am quite willing to grant that there may be circumstances under which it may be a duty to reduce all multiplicity of centers of reference to one ultimate and absolute source, but if so, it will be for the reason that other facts require it than the simple rules which induce

us to set up the relatively permanent centers which are most closely connected with common experience.

But it is this fact that we postulate or accept the existence of multiple subjects of "phenomena," whether permanent or transient, that gives rise to a new problem in causality, and whether we choose to treat these multiple subjects as simple or complex, as individual atoms or as a combination of them into collective wholes. What such a multiplicity of centers of reference implies is not merely the existence of subjects of attributes evolving changes in themselves by various modes of metamorphosis of a spontaneous sort, but a system of relations between each other. If these relations consist of nothing but time and space we should have nothing but a "universe," or better a multiverse, of chaos, in so far as the actions of these centers of reference were related to each other. But if there exist between these centers of reference, simple or complex, any sort of interaction, reciprocity of activity, commercium, or influence on each other, it would depend on the nature of this action to determine whether some sort of order could not be gotten into the multiverse of realities making it a universe of some kind, that is, giving it at least an ætiological unity, if its ontological unity had to be held in abeyance. It is uniformly accepted that some such interaction exists, and this relation has been expressed by the term "cause," so that the notion has come to indicate both the subject which initiates or supports modal changes in itself and the subject which initiates modal changes in anothor subject by an influence from without. In both we have the idea of *efficient* cause, that of instigating the occurrence of an event. In one it is that of initiating an event in the subject itself, and in the other it is that of initiating an event in another subject. In both the primary conception of "cause" is that of a subject acting.

But just at this point another complication in the conception of causality arises. The evidence for the existence of any subject, substance, atom, reality, or noumenon is the occurrence of an event, its action or function. If the action originates in the subject itself the evidence can be realized only by direct knowledge of the fact or by the knowledge of circumstances that prevent the reference of it to an external subject. If there be any reason to seek the center of reference for the initiation of the fact realized in the subject experiencing it the causal action will be so attributed, and if there be reason to seek it in an external subject the judgment will so act. But in both cases functional action or "phenomena" of some kind must be the evidence of the particular center of reference adopted. In the process

of intellectual development our internal states come to be the evidence of subjective reference and certain coexistences and sequences of another sort present the evidence of objective reference. I am not concerned at present with the validity of this distinction but with the fact. These coexistences and sequences, "phenomena," modes of activity, functions, etc., are quite analogous in their suggestion of causal imputation to any that require the supposition of the subject knowing them. They have their meaning determined by an objective imputability, implying a subject-object, and we have the two-fold type of cause indicated previously in the ideas of a subject and object or two objects or two subjects related to each other in commercium. But as the determination of these coexistences and sequences for evidence is the first problem of all investigation, and as the coexistences and sequences coincide evidentially with their subjects as facts and involve the same relations in space and time as their subjects there has been the tendency to identify the antecedent "phenomenon" with the "cause," abstracting from the subject, because we abstract from the subject in which the effect takes place and which is the consequent. Thus we come to think of events as causes and effect, in abstraction of their subjects which in reality are the true causes while the effect may be either modal or substantive. What in reality takes place is that one subject is supposed to act on another, not that one event produces another, though the formula for expressing it involves the representation of the relation in terms of the coexistences and sequences as events which are the evidence of noumenal realities, the tendency to this representation being caused by the fact that events in A produced by an external cause B are conceived in abstraction of A in so far as their occurrence is concerned and so are thought of only as initiated facts independently of their nature, as affected by their being constitutively acts of A. Hence the habit of abstracting A in our conception of the effect as an event related to an antecedent leads to the abstraction of B in the "cause," and in so far as the evidential problem, the *ratio cognoscendi*, is concerned this is correct. But the *ratio fiendi* requires us to take account of B as the *ratio essendi* requires us to take account of A, the one expressing the initiating, the other the qualitative "cause." But the evidential conception of the case leads to what has been called "empirical" causation, the uniformity of coexistence and sequence. But this is in fact not "causation" of any kind. It expresses nothing but the fact of temporal relation, whether regular or irregular, and never represents or includes the idea either of efficiency, that is, productiveness, or of transmission from subject to subject. This is clear from the persistent statement of

Kant and others, and clearly admitted by Hume, that "causality" expresses *necessary* connection, something more than *factual* relation which is all that "empirical" causality can denote. Kant's fundamental doctrine that we "know" only "phenomena" prevented him from having anything else but "empirical" causation, in spite of his definition of causality as implying more than mere factual relation: for it is perfectly clear from his own statement and that of Hume, as well as the reflective conduct of all men, that necessary connection is more than factual, and that it transcends the "phenomena" to which it supplies the reason for their nexus. It is itself quite as noumenal in that sense as substance or the idea of a subject. Kant therefore had no right to the conception as a necessary datum of his system, and it is just as apparent that in his unguarded moments he conceived the matter as coexistence and sequence, and nothing more, simply using the terms "necessary" and "cause" where a more consistent thinker would have used the term "uniform" without the implication of inevitableness. Hume's doctrine was, of course, rendered absurd by his own conduct. After telling us sceptically that the idea of "cause" was an illegitimate one, on the basis of the premises of Locke and Berkeley, he admits that we have it in the form of necessary connection, which experience does not contain. Then in the face of his limitation of "knowledge" or valid ideas to "experience" and the exclusion of causality from legitimate recognition while admitting that we have it as a fact, he proceeds to *explain* the origin of the idea from association! If he had said that it was nothing more than association and denied that we really had any conception of necessary as distinct from factual connection, there would have been less ground to criticize him. But he cannot be defended on the ground that this was what he meant, because he explicitly indicates that the necessary connection is something not given in "experience," and while it is a pseud-idea it is *caused* by association, *produced* by it. Hume was too much of a philosopher to remain in the position of scepticism and had to use the idea of causality to explain its existence in consciousness while he denied its legitimacy! In this he clearly transcends association by the conception of production which implies more than coexistence and sequence, as he is accounting for a fact by something that does not contain it, while insisting that it shall contain this if it is to be legitimate.

However we choose to denominate this "cause," or necessary connection, whether as efficient, occasional, or material, an influence or an *influxus physicus*, it is some sort of power to initiate in another

subject the event that demands an explanation, or even to initiate it in the subject of it. It distinguishes the dissolvable from the indissolvable associations and so represents something which transcends mere "phenomena." I do not care how we get it, or whether we call it an intuition, a priori "conception," category, or functional mode of consciousness, or other name indicating an inexpugnable datum of thought. It is there as an ineradicable fact, quite as compulsory in its convictional power as our apprehensions when they occur, though not having the same communicable nature as they and is also liable to inferential complications when the cause is to be made definite. But its incommunicable character is the important point to remark. All sensory conceptions have that character which enables us to point to them when they produce their own evidence in the "experience" of other persons, but unless others can *see* the fact of a causal nexus in any instance it is not demonstrable or communicable. This is strictly true of all facts of "experience," as we shall see later, but it is more especially true of causality and substance than it is of the "phenomena" which evidence them, inasmuch as their transcendency involves that kind of a mental act for the perception of them that is required to see a ratiocinative conclusion in geometry when the Euclidean figures are merely apprehensions. It is easy to show what we mean by a triangle and we may make this clear to consciousness and fail utterly to secure the perception of the mathematical truths that it embodies. These can only be seen, not communicated or pointed out in apprehension. The most important point to remark, however, is the fact that the "cause" is a noumenal fact in its nature and is implied by the circumstance that the mind refuses to permit the occurrence of an event to explain itself, and in one form or another seeks the explanation in something else whether an event or thing, though in the last analysis it is always a thing that is implied, if only as the ground of the fact which is treated as the "empirical" cause.

But where the conception of cause was not conceived as material, that is, as the transmission of motion from subject to subject, the relation between antecedent and consequent was conceived as efficient and after the analogy of a subject causing its own actions without passing over into them, and hence the notion of efficient cause came to denote the influence or power of production between events as well as between subjects and their functions, the subject of the antecedent being abstracted from in the process. The ætiological conception thus takes three distinct forms, different from the ontological, according to the concrete representation of the source from which the effi-

ciency issues, or the relation expressed. The first is that of the subject in the production of its own actions, whether free or not. It is illustrated in supposed free agents, and the internal "forces" of chemistry, though the occasion for both may be externally determined. The second is that of an external subject exercising the power to initiate or occasion the occurrence of events in another subject. This is illustrated in all interaction between substances or externally related centers of reference, as a sound produced by impact, sensation of color by impressions on the retina, or any mechanical effect of momentum. The third is that of necessary connection between events, upon which we have commented. This is the usual form of representing causality, because it is through the evidential "phenomena" of coexistences and sequences that all objective causal relations are established and made clear. The existence and meaning of the last two conceptions are determined by the existence, real or supposed, of a plurality of centers of reference, and hence involve some kind of interaction, however this is conceived, as a condition of any such ætiological and teleological unity as may be possible in a system of plural substances. But the point to be most distinctly noted is the conception of the ætiological problem which is involved and which represents efficient causality in different concrete situations, though the relation between cause and effect is always the same in general and implies some sort of antithesis or distinction, either that between substance and mode, or subject and object reciprocally affected, or "cause and effect" between events. In discussing ætiological efficiency it will always be important to keep these three concrete forms of it in view.

The ontological problem, or that of material cause, is just as complicated. The first is that of a compound formed from elements, or "stuff," constituting a whole. This whole may be a collective or organic compound constituted of units, the organic, of units of a different kind, and the collective, of units of the same kind. The appearance of properties in the compound not present in the elements offers a problem for subjective efficient causation, while those carried into the complex whole from the elements offer that conception of material causation which is expressed in identity of some kind between antecedent and consequent, or element and compound. This is called material cause for the reason that it expresses the nature of the result in terms of the antecedent reality, while the process of transition or change, whether from a simple to a complex condition, or from a state not containing to one containing certain new properties, is explained by the efficient or formative cause.

The same distinction is also necessary in the interpretation of the complicated "phenomena" associated with the interaction or commercium of various centers of reference, where composition is not the conception expressing their relation, but where it is "mechanical" intercommunication. Here we suppose that one subject or center of reference influences another and its action. This influence is conceived in two ways. The first is the transmission of motion or energy from one subject to another and the retention of its identity in at least all essential characteristics. This is the doctrine of *influxus physicus*, or the "mechanical" transmission of the antecedent condition of *A* to *B* in which it is simply taken over as *B's* condition. This implies that it is the same in kind and the conservation of energy maintains that its quantity remains identical or the same. The second complicates "mechanical" or transmissive causation with a modification of the effects in the subject in which they occur. In chemistry, for instance, there is not always a definitive quantitative relation between the qualitative changes in the subject and the "mechanical" antecedents involved in effecting the proper juxtaposition of the elements for exciting affinitative or other action. The same general disparity is observable also in certain "mechanical" "phenomena" where apparently the process is only the transmission of energy. That is, there are certain qualitative events in the effect not found in the cause or antecedent. In both these cases the variations are not reducible to the material cause alone assumed in the antecedent, and in addition to this the notion of the inception of an event or condition in *B* which *B* did not spontaneously originate, but which was instigated by *A*, together with the necessity of accounting for all qualitative changes by the action of *B*, suggests a causality which is more than material in its "mechanical" sense, while this latter is admitted to be a fact also, whether immanent with the efficient cause or not. Hence, whether dealing with substances or modes, we seem to require the use of both an ætiological or efficient and an ontological or material cause. The former accounts for change and the latter for constancy in that change and so is subordinate to the ætiological.

If now there be but one subject or substance the ontological principle will apply to the exercise of its functions or activities. All changes, I do not say all "motions," but all changes, comprehending alterations of direction in motion, which in the abstract might be eternal, and qualitative changes or metamorphic "phenomena," in such a single subject would have to be explained ætiologically and ontological causes would either have to be made convertible with the

ætiological or be applicable only to the similarities and differences involved in the "phenomenal" modes of the absolute. But if the centers of reference for events are plural, as in the atomic doctrine and in the actual existence of independent complex organisms, the complications arise which I have just discussed, showing that ætiological or efficient causes initiative of events may apply either to the influence of the subject in producing its own modes or to the influence of the object in producing or initiating the modes of another subject, while the ontological or material causes may apply to the constitutive qualities by which we explain the similarity and constancy of kind either in the plurality of subjects, or in the transitions of substance from the simple to the complex forms and the transmissions of energy from subject to subject.

It is thus apparent that, in the noumenological problem we have the general conception of cause at its basis, with this dividing itself into two more distinct types and their ramifications. The first may be called that of *static* cause or substance, and the second that of *dynamic* cause or property. The terms may not be as accurate as is desirable, but they are useful to connect the fundamental assumptions of physics with metaphysics and to distinguish between cause as ground and cause as activity initiating or constituting other effects. But it is the existence of other facts than mere temporally and spatially related events that represents the metaphysical problem and I have chosen to denominate them in terms of "cause" differentiating it to suit the various forms in which causality expresses itself and concentrating all of them finally in the one center of reference which can be known as substance, all else being modes of activity either originated or transmitted, or both. The importance of thus subordinating the ontological to the ætiological conception will be apparent when we come to discuss the theological problem. All that noumenological questions require at this stage of the discussion is the acceptance of transphenomenal facts as completing the process with which human thought begins its curiosity in regard to the world.

CHAPTER III.

ANALYSIS OF THE PROBLEM OF KNOWLEDGE.

Epistemology has always been regarded as convertible with the theory of "knowledge." But there has also always been two equivocal characteristics about it. The first concerns the conception of "knowledge," and the second concerns the function of its theory. In regard to the second of these it has not always been made clear whether it was the function of epistemology to explain *how we acquired* "knowledge," the *modus operandi* of obtaining what we know as a fact, or whether it sought to determine valid as distinguished from invalid mental processes. From the classification of the various problems of science and philosophy in the previous chapter it is clear that it is there defined as an orthological science, namely, a science of validity in the intellectual activities of the mind. This will not interfere with the simultaneous study of the processes as modes of acquisition, though it assumes that this is wholly subordinate to the purpose of distinguishing between the sources of truth and error. But I mean to treat it as primarily occupied with the determination of criteria for the rational acceptability of certain judgments as facts. That is to say I shall treat it as the determinant of the conditions of rational belief and certitude. I thus make it as comprehensive as the doctrine of "perception," in ordinary parlance, extending to the inclusion of Logic, or the doctrine of Ratiocination, and Scientific Method. This makes it the science of the conditions of conviction.

But it is the conception of "knowledge" that has given the most difficulty in determining the scope and function of the science. It is astonishing to find how infrequently we observe any attempts to define the field which is universally assumed to represent that of epistemology. Having indicated that "knowledge" was the peculiar territory of epistemology we should naturally expect some careful and clear definition of what "knowledge" meant, or what it comprehended. But this most indispensable of all preliminary considerations seems to have generally been neglected. Kant, for instance, gives us his theory of "knowledge" without any definition of what it was that he was doing. He now and then speaks as if "Wissenschaft" and Erkenntniss, were the same, but it is apparent that they do not always, if they ever coincide. "Wissenschaft" is properly the body of doctrines which is

comprehended in "science" as distinguished from speculative philosophy. "Erkenntnis" is properly something more definitely limited to psychological processes and products that may not extend so far as the "knowledge" of the "scientific" mind. It is quite compatible with an ignorance with which "Wissenschaft" is not compatible. It may be apparent enough what Kant means by it in isolated cases, but what it meant in his general theory of "knowledge" is not indicated. In the discussion of "methodology" he distinguishes between "Wissen," "Meinen" and "Glauben" in a way to suggest an approximate definition of "knowledge," but in fact he makes no attempt to connect the distinctions which he there adopts with the earlier discussion. Hence we are never sure whether he intends "knowledge" to be convertible with "science," which includes the methods and results of Induction as well as Deduction, or to limit it to those convictions which are characterized by certitude. The questions implied by this distinction are different from each other, though one may include the other. What we need to know is whether, in the problem of "knowledge," we are in search for a criterion of certitude, a method of assured convictions, or a method of systematization of experience. Certitude is connected with the "modality" of propositions, and is only one of the degrees or kinds of "modality": systematization or the unification of experience is connected with the principles involved in the "relations" of phenomena and may include any kind and degree of "modality" whatever in judgment. Kant never remarks this fact. He is entirely oblivious to the circumstance that scepticism is primarily a question as to certitude regarding certain definite issues, and not at all a question as to systematization. He ought to have recognized explicitly what he seems not even to have known, that Cartesian thought conceived "knowledge" in opposition to doubt or scepticism and so represented it as concerned with that of which we are primarily certain. Kant's whole treatment of the problems of God, Immorality, and Freedom showed that he had acted under this assumption, but it does not appear anywhere else in his system. The problem of scepticism is one thing, and the problem of understanding or intelligibility is another, but Kant did not distinguish them as he should have done.

A similarly misleading conception of "knowledge" is apparent in such works as that of Hobhouse. I do not say that it is wrong, because a man has a right to use his terms as he desires, provided that he defines them. Also it is apparent that Hobhouse in his "Theory of Knowledge" is not so much occupied with a refutation of doubt as he is with

the fundamental psychological principles of "science." Hence I am not concerned with implied criticism in the reference to his work, but with an illustration. It is apparent from his discussion throughout that he has in mind "scientific method" and not an answer to scepticism. He comprehends in the work the whole subject of Induction and probability, which cannot in any sense be made convertible with the certitude which the term "knowledge" so often implies. Hence we cannot go to his treatise for any such limitation of the problem as was found in the system of Descartes.

It was the controversy between Greek and Christian thought that resulted in clearly distinguishing between "knowledge" as certitude and "knowledge" as intelligibility. It was latent in the dispute between Plato and the Sophists, but was suppressed in the superior interest of Plato and the Greek mind in the nature of reality rather than the theory of "knowledge" in terms of its certitude. But the issue was easily precipitated by the exigencies of Christian thought which proposed a number of beliefs involving a transcendental world whose assumed existence was a direct challenge to reason. The real or apparent contradiction to "nature" and "experience" in many of its doctrinal demands naturally evoked scepticism, and tended to limit the conception of "knowledge" to the sensible world, especially as the distinction between the supersensible physical world and the superphysical or immaterial world of faith was not an easy one to sustain. Consequently as time passed and doubt more and more made its incursions upon the objects of faith, the number of things which came within the purview of assured conviction decreased, and the conception of "knowledge" became strongly associated with the immediate processes that gave certitude. This is clearly illustrated in the procedure of Descartes. He tries to doubt everything, but finds that he cannot doubt the immediate deliverances of consciousness without intellectual suicide. "Knowledge" thus becomes convertible, in its initial stages, with the immediate deliverances of consciousness, whatever they are, and this is followed by a ratiocination equally valid, when founded on principles attested by some intuitive function. But certitude is the characteristic which defines the object of the Cartesian suit, and certain objects are assumed, if not admitted, to have less assurance for their reality than others. The conception suggests a graduated system of beliefs associated with various degrees of tenacity with which they shall be held. But the thought was not worked out by the Cartesians and seems not to have occurred to the mind of Kant. Yet it is chiefly this idea of certitude, and not intelligibility, that characterizes the term when dis-

cussing the problems of scepticism. It is true that intelligibility is closely related to the criterion of certitude and probability, but it is not the primary attestation of truth. It only expresses conformity to accepted fact or truth and does not supply either the primary or the ultimate evidence of conviction.

As a further illustration of its equivocal import it should be remarked that "knowledge" has been opposed to ignorance, to doubt, to "opinion," to faith, and sometimes to belief. Ignorance is the mere absence of ideas and convictions. Doubt is something in addition to this. It represents a more positive state of consciousness. It shows a consciousness of ideas about a subject though it does not involve belief of any affirmative kind on a given issue regarding it. It has both a positive and a negative implication. It is the absence of conviction affirmatively and a tendency to disbelief, or at least a sympathy with disbelief. Doubt thus involves intelligence, ignorance does not. Doubt at least involves a knowledge of ignorance, ignorance does not involve this so distinctly, though self-consciousness of ignorance is possible and often a fact. But doubt usually involves besides this consciousness of ignorance also the feeling that evidence is so wanting in favor of a given assertion that the defect amounts to a positive presumption against it. Hence knowledge and doubt are often so related to each other that they may be conceived as representing two opposed opinions on the same subject; doubt being the negative expression for one of the opinions, and assumes incertitude where knowledge implies this confidence in belief.

In regard to the other terms not much needs to be said. The comparison between "knowledge" and "opinion" is largely due to the translation of Greek phrases. Opinion in Plato seems to have done service for "faith" or belief on authority and for conjecture and inductive probabilities of a low grade of assurance. "Faith" is a term with a mixed history, at first meaning only a quality of will toward a person or principle, such as fidelity or faithfulness, and afterward assent to propositions on authority or by mental actions distinct from ratiocination and direct experience of the facts believed. It was thus opposed to "knowledge" as the acceptance of authority is opposed to the certitude of personal insight and experience. Belief is a term for any form of assent to truth and may be indifferently convertible with "knowledge" and assent with doubt, or with the sense of probability only. But in all these contrasts "knowledge" is more or less associated with implications of assurance and certitude in regard to the fact or proposition alleged to represent truth.

There is also another meaning of the term "knowledge" associated with this predicate of certitude. It is the immediacy of the perception of truth in certain cases, implying that any given truth, whatever assurance we may obtain for subordinate truths, is an immediate object of consciousness, possibly of "experience" and possibly of "intuition." This conception is also associated with the philosophy of Descartes. What he realized was the possibility of doubting certain assertions or existing beliefs and as a consequence he asked in the true spirit of the sceptic, what belief is acceptable or can offer satisfactory credentials in its favor. What he saw was that neither absolute knowledge nor absolute scepticism was possible, that is, that we do not know everything and that we cannot doubt everything. The impossibility of universal scepticism is apparent in the single statement that the denial of all "knowledge" involves the truth of this denial, the "knowledge" and certitude that this denial is true. Hence, somewhere between these two extremes lay both what we know and what we do not know and may doubt. In the effort to solve his problems Descartes postulated doubt and illusion about the existence of God, the soul, and the objects of our senses and finally found that he could not doubt the testimony of consciousness. As indicative of what its limitations were in the second Meditation he asserts that the mind is more easily apprehended than body. It is apparent in this position that little or no distinction can be drawn between being a state of consciousness and "knowing" it and nothing else. That is, the natural outcome of the doubt about any other objects than consciousness itself as absolutely certain and the evident directness or immediacy of this was that "knowledge" was more or less convertible with immediate or intuitive perception, with the implication that this perception did not extend to the direct consciousness of external "reality." Thus "knowledge" implied not only certitude but also intuition or immediate "perception," and all other objects were only mediately or indirectly "known" or certified. One school, however, extended this intuition to the perception of external "reality" and another limited it to the states of consciousness as such, assuming that external "reality" was hypothetical or inferential. But both agreed that "knowledge" in its ultimate elements was immediate and intuitive, and so tended to give that connotation to the term. Now as the predicate of certitude had previously been associated with ratiocinative "knowledge" it was apparent, from the distinction between intuitive and ratiocinative truth, that immediacy and certitude did not necessarily coincide, so that an equivocation arose between these two applications

of the term. This ambiguity is still further increased by the more general import of the term in which it denotes intelligibility or understanding, while a fourth meaning is given it by its comprehension of all that is implied by "science" which includes inductive ideas without the certitude so commonly associated with the term "knowledge."

As a consequence we have four distinct meanings for the term "knowledge" in the parlance of science and philosophy. (1) Immediacy, or intuitive consciousness; (2) Certitude, or absolute assurance in conviction, whether intuitive or ratiocinative; (3) Legitimacy, or acceptability in belief whether certain or merely probable; and (4) Intelligibility, or systematization by any process direct or indirect, deductive or inductive, whether belief takes the form of a working hypothesis or a proved fact.

These four different meanings of the term "knowledge" represent as many different problems, or as many different solutions of the same problem. It is one thing, and a comparatively simple thing, to indicate the limits of immediate "knowledge," if we define "immediate" as identical with having a state of consciousness, and it is a very different and much more complex thing to explain the various processes involved in both immediate and mediate "knowledge." It is one thing to indicate the first stage of certitude and it is another to show all the processes with which certitude is connected. It is one thing to show what is absolutely assured and it is another to show what is rational when it is not proved. It is one thing to have a rational conviction and it is another to realize that an assertion is intelligible whether believable or not. All these are questions that must be answered and kept distinct in the theory of "knowledge." They require separate answers, even though some of them involve in part the answers of the other. Thus the question of certitude may include the problems of both intuitive and ratiocinative "knowledge" while immediacy involves but one of the two functions. All this becomes much more complicated when we have to distinguish between simple and complex "knowledge," which involves the systematization and articulation of many experiences into an organic whole. For instance take the idea represented by Copernican astronomy, or Darwinian evolution. This involves more complicated mental processes than the apprehension of a color, and consequently requires a more elaborate analysis of consciousness than the discussion of sensation only. It is apparent then that we have to analyze and define what we are trying to determine in the theory of "knowledge." That analysis begins with the limitation of the term "knowledge" or a definition of

its various meanings in order to learn just what the problem is, or what the problems are, with which we have to be occupied. Our solution will be simple or complex, according to the simple or complex nature of the thing we are investigating. If "knowledge" is limited to the elementary data of consciousness we must present the functions that give these data and invent some other term for the later acquisitions of belief and assured conviction. If it is any fact of which we are certain, we may require to study the reasoning processes as well as the simpler functions of sensation and apprehension. If it is mere intelligibility we may be satisfied with the explanation of conformity to past experience whether we have any belief in "reality" or not. If it expresses any fact or truth that is rationally believable, or a legitimate object of belief, we shall have to include the whole problem of induction in our exposition. We thus see that our answers to scepticism will depend on the various forms of "knowledge" that we have to consider.

There are also two questions in the definition and analysis of the problem of "knowledge" which are very closely connected and yet require to be distinguished from each other. They are: "*What* do we 'know'?" and "*How* do we 'know'?" The first question asks for the thing supposed to be "known," and the second for either the process or the evidence of the thing "known." It is not always clear whether it is the process or evidence that is meant, in the latter question, though the process is the only evidence available in some form of "knowledge." Let us examine both of these questions.

Assuming any of the four meanings of the term "knowledge," there are still a number of distinct problems involved in *what* we may "know." The object, of course, in ascertaining *what* we "know" is to determine the facts or rational beliefs which affect our actions. All beliefs have a relation to conduct whether they are followed or not, and the desire to determine what is rational or necessary to believe is based on the relation of these supposed objects of belief to conduct. There is also another motive in the desire. It is to have a basis for the deduction or support of beliefs that may be under dispute. But in any case, historically the things that we were supposed to "know" represented in the early period of Greek thought almost any supersensible "reality." Philosophy reduced this to the physical world and when scepticism had advanced far enough it reduced the "knowable" to sensations, as we have observed in the Sophists. But a supersensible physical world was too fascinating an object of speculation to be surrendered to such limitations and it survived. It was followed, as we have seen, by the superphysical or spiritual world of Christianity.

When scepticism began again to limit "knowledge" and belief, it first dissolved the subordinate doctrines of theology and finally threw out those of God, Immortality, and Freedom. All this was as much as to say that we could not "know" these objects, that they could not supply the proper credentials for rational acceptance. Finally scepticism, after assuming the possibility only for provisional purposes, discussed more seriously the limitation of "knowledge" to states of consciousness and assumed that we have no direct "knowledge" of the external world. That is, one stage of reflection, or theory, says that we cannot "know" God, etc. Another that we cannot know the "soul": that we know nothing but matter. Another denies that we can "know" matter. Another denies that we can "know" the external "reality," whether it be matter or anything else. All these represent metaphysical problems of different schools and cause a variation of the epistemological question according to the special object of "knowledge" coming under discussion. The perplexities involved in them when we simultaneously recognize the equivocal import of the term "knowledge" are still more obvious.

The problem of *what* we "know" has been briefly sketched historically alluding to the chief points of view in different periods to show how it had changed. It has at the same time been attacked in different ways. Sometimes the question of what we "know" is approached with a view to showing the chronological order in which certain ideas originate. This proceeds on the supposition that certain "knowledge" comes later than another. It is usual also to assume or indicate that it is our "simple knowledge" which comes first in order and our "complex knowledge" which comes later. For instance, our sensations are more primitive than our idea of God. Then again we may examine the simplicity and the complexity of our "knowledge" with reference to the comparative certitude of the two aspects of it, discussing the processes concerned without placing the stress upon its evolution. Now it is quite evident in either one of these modes of procedure that the validity of what we "know" will vary with this simplicity and complexity of it, according to the nature of the processes and conditions connected with its derivation. Consequently we have complications of the content of our "knowledge" with the prior question of its simplicity or complexity.

The second question, "*How* do we 'know'?" is an equivocal one. I have intimated this in the allusion to its demanding either the evidence or the explanation of an alleged phenomenon. We must examine this equivocation more carefully. The question arises always

in a situation which involves or implies an argument or a desire for information. For instance, if I make the assertion that matter as we know it is composed of small indivisible atoms, I may be asked, "How do you 'know'?" If I assert the existence of God, I may be asked, "How do you 'know'?" If I assert that man has an immortal soul, I may be asked the same question. If I say that we have an immediate "perception" of external "reality" I may be asked, "How do you 'know'?" If I say that Mr. Smith is a fraud, I may be asked the question. If I say that politics are corrupt I may be asked the question. In some of these cases it is evidence of the assertion that is wanted and in others it is the explanation of a fact. Hence we are not sure from the form of the question which it is that is desired. Hence I shall divide the question into two and shall call them the scientific and the sceptical questions. By the scientific question I shall mean a demand for the explanation of a fact admitted to exist. By the sceptical question I shall mean the demand for evidence that the allegation is a fact, with the implication that inability to supply this is convertible with the falsity or incredibility of the assertion. The first question admits, the second disputes the alleged fact. Consequently when a man is asked, "How do you 'know'?" he is at a loss to determine what is wanted of him. If he answers it by a statement of the *modus operandi*, or process, of acquiring his "knowledge" he does not satisfy the sceptic's desire. If he gives the evidence for his allegation he does not explain the alleged fact. If he says that he does not know how he "knows" the fact he is liable to the retort of the sceptic that he believes without evidence. For the sceptic is in the convenient position of sheltering himself behind an equivocal question, one that seems to be asking for information in regard to an admitted fact and yet may in reality be intended to dispute it. Whenever the sceptic puts this question we should insist on knowing what it means, whether he is asking to have an admitted fact explained, to know the process by which "knowledge" as a valid fact is obtained, or whether he means to doubt the alleged fact. If he means the latter his question may contain a virtual assertion, and in so far as it does contain this the *onus probandi* rests on him. When his doubt is dogmatic, that is denial of the alleged assertion, he is subject to the rules of evidence also. If, however, he wants evidence as to the alleged fact he is entitled to this satisfaction, or he must be allowed to maintain his suspense of judgment. On the other hand, if he means to ask for the explanation of an admitted fact we have alternative replies without implying an impeachment of the facts. We may offer an explanation

in some process by which the "knowledge" has been gained. Or we may say that we do not know how we "know" and do not care, and that we are satisfied with the admitted fact, which is all that is necessary for the regulation of conduct. It may be interesting and instructive to know how we "know," but it does not determine its validity to be able to assign the cause or explanation of the admitted fact. It only enlarges the range of our "knowledge" or the rationale of facts, not the truth of them. The primary question, of course, is the evidential one and here the sceptic has his rights. But he is not entitled to a confusion of the issue. He must be made to indicate whether he wants an explanation of admitted facts or the evidence for alleged facts. Two issues, that of fact and that of explanation, are concealed in this equivocal question and they must be distinguished from each other. If we are asking the sceptical question we must make that fact clear. If we are asking for an explanation of an admitted fact, we must make that clear. We cannot be permitted to evade responsibility by reposing in equivocations, or insinuating that a failure to explain discredits a fact.

The sceptical question, however, when it does not involve any dogmatic implications of denial, has an aspect of some importance in the problem of "knowledge." It is the difference between *proof* and *insight* in the matter of "knowledge" and the relation between the doubter and believer in regard to the kind of "evidence" necessary to make their convictions the same. When the sceptic asks his question he is seeking some sort of proof for the alleged fact. He desires grounds for conviction. Now "proof" may mean any process whatever by which we obtain our "knowledge" or convictions, whether it be "experience," insight, or deductive and inductive argument. It always stands for some method of creating assurance or rationality for belief. If we suppose that "experience" or insight is the ultimate assurance of fact, and if the sceptic continues his query for every assertion that we make as a premise to the desired conclusion, thus implying either that all "knowledge" is impossible or that "experience" is its attestation, we must leave him to his own resources, as universal scepticism puts him beyond the pale of rational consideration and the assumption that "experience" is the final source of truth releases the believer from the obligations of argument. But if it is argumentative "proof" that is expected, we may employ either or both deduction and induction in answering the question. In both we may have nothing more than an *ad hominem* instrument. Whether we appeal to some general truth which the interrogator accepts or to facts which

we expect him to accept, we use an existing conviction in his mind to enforce the assertion at issue. If he admits the premises and the conclusion follows, assuming that formal and material rules of reasoning have been complied with, he must either contradict himself in further questioning the assertion, or maintain that his admission is merely *pro forma*, and then demand "proof" for the premises, and so start the regressive doubts which ultimately land him either in universal scepticism or the appeal to "experience." In this situation, as indicated above, the believer has no responsibilities, and if responsibility exist anywhere the sceptic must work out his own salvation.

It will thus be seen that, even when we have agreed upon the meaning of our terms, the problem of "knowledge" has a two-fold aspect, that of acquisition and that of communication, the method of the subject's obtaining it and the method of establishing a similar conviction in our neighbor. This is important because it will be discovered in the last analysis that no man can escape personal responsibility for the acceptance of truth. The functions of ratiocinative "proof" are purely social. It is only an *ad hominem* instrument for determining the extent of the agreement between the members of the social organism.

In this connection it will be interesting to remark the reason for the limitations of scholastic thought. It was throughout a defense of Christianity. This system defined clearly the antithesis between "knowledge" and "faith." The objects of the latter were not accessible to either sensory "experience" or syllogistic "proof," in the early stages of its intellectual development. But the incertitude which inevitably arose from such a position, the importance of the issues involved, and the natural habitual practice of employing ratiocinative methods in secular affairs soon instigated attempts to "prove" the dogmas of the Church. The study of "nature," which could be prosecuted only by the inductive method, having been abandoned, there was left nothing but the Aristotelian logic for a resource, and besides, as certitude was the demand, nothing ratiocinative would supply this but the deductive syllogism. Then as the system had started with the assumption of "faith," or authority as the source of religious dogmas, its primary problem was the *communication* of truth not the acquisition of it by ordinary "experience," which involved sensory processes. The syllogism was the only instrument at command for this communication and consequently became the one scholastic organon for "knowledge." It was the revival of physical science and of empiricism in psychology that substituted induction

and personal "experience" for authority and dogmatism in the determination of truth.

But as we have come to extol "experience" in the acquisition of "knowledge" it will be important to remark the equivocation in that term. If we limited its meaning to sensation we might have at least the appearance of a clear and unambiguous conception. But the term does not uniformly obtain so definite and limited an import. It is often used in the Aristotelian sense to include the functions of memory. Sometimes it denotes any individual impression, sensation or state of consciousness, and sometimes it denotes a group of connected and related states. Sometimes it is equivalent to "perception" and sometimes it is "perception" with memory. Sometimes it is a single realization in consciousness, and sometimes it is a series of such realizations with an increment at the end associated with memory and perhaps due to inferential functions. This latter may include all the mental processes beyond sensation and so attempt to solve the problem of "knowledge" by repeating a word which had a narrower import in the school which started to use it. In some of its uses it is hardly distinguishable from "intuition." It is exposed to this suspicion in all cases where it means an immediate apprehension or realization of a fact other than merely having a sensation. That is to say, it does duty for either sensation or the combination of sensation and "perception" of the immediate or intuitive sort. The equivocations in these various usages require to be eliminated before any clear progress can be made in solving the problems of epistemology. In fact all the phrases supposed to characterize "empiricism" have their controversial importance determined wholly by the limitations assumed to belong to the fact of "experience." If this fact, either by definition or implication, involves other functions than sensation pure and simple it opens wide the door to the doctrines which "empiricism" is supposed to dispute, and prevents all accurate characterization of the doctrines from which that theory derived its name. It seems that the prevailing philosophical speculation can never define in what specific sense it employs the term and the consequence is that its position, especially since Kant who never told us what "Erfahrung" was, has no definite relation to the problems of scepticism. It appears only as a convenient expression to escape the maledictions of those who take offense at any term which assumes other than sensational functions in the process of "knowledge." "Intuitive" and "a priori" have been so discredited or misunderstood that it is not reputable to use them and one can save his character and evade unnecessary controversy if only he

employs the terms of his traditional adversary while he conceals in them the meaning which this adversary is not acute enough to recognize. What the philosopher ought to remark is that it is not merely the definition of "experience" that is the primary source of the controversy, but the still more ambiguous implications in the phrase "derivation from experience" when embodying "empiricism" in it, or defining that doctrine by it. We can make the term "experience" definite and clear by limiting it to sensation or to those states of consciousness which are conceived as occurrences and which are not interpreting acts, and even then have an equivocal and dubious phrase in that which speaks of the "derivation of knowledge from experience." The real crux of the problem lies in the uncertain meaning of this last phrase. The concept "experience" has no value in the discussion unless it represents a comparatively simple element in a larger complex whole. If it stands for a complex totality which includes all that is at issue the statement that "knowledge is derived from experience" only begs the question as a definition may do. Hence the only useful conception of the term is that which treats it as a primary element in the total product of conscious reflection. Hence it will help to a useful analysis of the issue if we limit "experience" to the meaning indicated above, where it was suggested that it might be defined as any state of consciousness viewed as an occurrence, an effect, and not as an interpreting act. Then the question of "derivation" or "origin" of "knowledge" from this will be determined by various considerations: (1) whether "knowledge" is a sensational or intellectual process: (2) whether "knowledge" is limited to a sensational content, or extends to a supersensible content or implication: (3) whether sensation is representative or merely indicative of an "external reality": (4) whether "knowledge" extends to the "nature of reality" other than mental states, or is limited to the mere fact of it. The complications with which epistemology thus has to deal appear quite numerous. They cannot be unravelled, however, without an analysis and classification of the various theories of "knowledge" and "reality." This is the next step in the present discussion.

The mere enumeration of the various theories of epistemology and metaphysics will show what the complications are with which we have to deal. They are sensationalism, intellectualism, rationalism, scepticism, phenomenalism, positivism, empiricism, experientialism, intuitionism, apriorism, nativism, idealism, realism (psychological), solipsism, nominalism, conceptualism, realism (metaphysical), monism, dualism, pluralism, atomism, monadism, materialism, immaterialism,

spiritualism, pantheism, theism, deism, agnosticism, transcendentalism, and perhaps some others.

A little observation will reveal the fact that these various theories can be somewhat systematized. Besides they are not so distinct from each other in many cases as the difference in name might suggest. For example, sensationalism and phenomenalism are often identified. Intellectualism and rationalism at least partly coincide. Scepticism and agnosticism are identical or almost so. Empiricism and experientialism are quite identical. Pluralism, atomism, and monadism coincide in their numerical conception of the "reality" which they name. Apriorism, intuitionism, and nativism are closely affiliated, if not identical. On the other hand, idealism is often opposed to materialism and to realism without implying that the latter two are identical. It is also at times associated with intellectualism.

It is this peculiarly equivocal conception of idealism in modern philosophy that suggests the radical distinction which I mean to adopt between epistemological and metaphysical theories. This distinction should be apparent from the discussion of the two questions, "*What* do we 'know'?" and "*How* do we 'know'?" I there indicated that the one referred to the nature of the object of "knowledge" and the other to the process or the evidence of it. Consequently I shall maintain that it would be much more conducive to clear thinking if we should distinguish between epistemological and metaphysical doctrine in our conception and definition of their theories. In pursuance of this consideration I shall confine idealism and realism to the field of epistemology. The reasons for this limitation will appear later. The following is a tabular representation of the various theories of "knowledge" and "reality."

In this outline of the theories of "knowledge" and "reality" the logical method of division would imply that they represent distinct species, and to that extent differ in subject matter. But the fact is that no such principle can be carried out as is implied by the mode of classification. I can only assign a given theory an approximate position in the system and I have been governed partly by existing conceptions of it and partly by the necessity of preserving the distinction between epistemological and metaphysical theories. If I could impose upon each term the meaning which the principle of division and classification requires their relation to each other would be clear, and I intend that, in their ideal conception, this shall be the case. But I am obliged to recognize that the current uses of the terms do not prevent many of them from coinciding in at least a part of their territory.

Thus empiricism and sensationalism have usually gone together and have represented the same general philosophic tendencies. They seem to differ only in the terms by which they express the same point of view, though, as a matter of fact, we may discover other slight differences. Again there is a close relation between Lucretian and modern

Atomism. Also the quantitative theories of "reality" are very closely related to the qualitative theories. The Dualism of Descartes is identical with Theological Spiritualism. The Uno-monistic theory of Spinoza is sometimes regarded as identical with Pan-materialism, and sometimes with Pan-spiritualism. The only difference between the quantitative and qualitative theories is that the former does not specifically characterise "reality" as such, but only its numerical aspect, while the latter denominates by its terms the nature of it. The exact meaning and relations of these will be discussed later.

But the most important question for examination at present is the relation between epistemological and metaphysical theories which I wish to regard as distinct from each other, though connected with each both historically and to a certain extent logically. I refer to Idealism and Realism on the one hand, and to Materialism and Spiritualism on the other. The classification above places Idealism and Realism in the epistemological series and does not regard them as "ontological" theories at all. It is a fact, however, that Idealism has no such definite conception as is thus implied. It is in the conception of many of its advocates as much of an "ontological" as it is an epistemological theory. This is proved by the uniform antithesis to Materialism which it is supposed to represent. Many of our philosophers speak of Materialism and Idealism as if they were mutually incompatible. It is regarded

as a sufficient refutation of Materialism to advocate Idealism. If a man wishes to so define it, there can be no objection. But two things are noticeable which show that we cannot thus regard it and at the same time assume that we are dealing with the same conception in relation to other theories. They are: (1) that Idealism has generally been opposed to Realism, and (2) that its adherents have not displayed any desire to identify it with Spiritualism of any kind, unless it be Panspiritualism. Now Realism is not and has not been a metaphysical theory. Its advocates have not identified it with Materialism, but have as often, if not more frequently been Spiritualists of the dualistic sort. Realism has been the doctrine which maintained that the mind can transcend its states in its "knowledge," that it can "know" something else than its own states, that it can "perceive" or posit an external "reality" as the cause of its sensations. It is not necessarily involved in any assertion of the nature of that "reality." That issue may remain for decision after the fact of external existence has been asserted. It is true that usually the real*ists* have also pronounced for the material nature of their "reality" and possibly all materialists have been realists, but it has not been the primary motive of the realistic philosophy to identify the judgment *that* an external "reality" is "known" with the judgment as to *what* that "reality" is. The main object of the doctrine was to justify the belief in something else than the subject's own mental states. It was primarily interested in refuting Solipsism. Consequently Realism has never properly been an "ontological" theory, however closely it may have been associated with ontological views. Now if Idealism is to be conceived as opposed to this conception it must represent a denial of the possibility of "knowing" any "reality" beyond the subject's own states. It must limit "knowledge" to subjective phenomena and deny the possibility of transcending these. This conception of it does not involve an explanation of "phenomena," but a mere cognition of them. The materialistic theory is one that explains or attempts to explain "phenomena" as modes or functions of matter. To oppose that theory we must assume that there are "phenomena" which it does not explain. Hence to oppose both Realism and Materialism by the doctrine of Idealism we must assume both a cognitive and an explanatory function for the idealistic theory at the same time, though this would not be so objectionable if Realism and Materialism were identical. Consequently I must insist on a clear limitation of the part to be played by a theory of Idealism when it is or should be apparent that a theory of "knowledge" and a theory of "reality" are not necessarily convertible.

The history of the term shows clearly how it became ambiguous. It was first applied to the philosophy of Plato in which the Greek word "idea" was employed to characterize the "form" of "reality" that was permanent and so did not characterize "phenomena" at all. In modern times many of our idealists limit "knowledge" to "phenomena" and on that ground proclaim their Idealism. The point of view and the assumptions determining present philosophic tendencies have completely changed since Plato. His "ideas" in fact could not be distinguished from Epicurean atoms in some of their characteristics. They were eternal and they were supersensible. The difference was that the atoms were substances and the "ideas" were characteristics, though permanent modes of things. The term was not associated with consciousness as in modern thought. Its only approximation to anything like modern conceptions was in the fact that "ideas" were ascertained by mental processes above the senses, and the internal and external worlds, "subject and object," consciousness and physical motion, were the same in kind, so that the phrase, "thought and reality are identical," could well be used to represent the point of view of Plato, while the effect of Nominalism and the non-representative nature of consciousness in modern psychology, with its antithesis between "subject and object," has been to limit "ideas" to states or conceptions of consciousness and not to extend the application of the term to the universal and permanent qualities of any "reality" whatever. Consequently there is little more than an etymological lineage between Platonic and modern Idealism.

Again ever since Berkeley and Collier the term Idealism has assumed a meaning determined by the special exigencies of the system which proclaimed itself as such. Berkeley's system is called "subjective" Idealism, Kant's "transcendental" Idealism, Fichte's "subjective" again, though not identical with Berkeley's, Schelling's "objective" Idealism, and Hegel's "absolute" Idealism, with the tendency of later writers to conceive Hegel's system as "objective" Idealism without wholly conceiving it as the same as Schelling's. In this variety of different or contradictory meanings it is impossible to obtain any useful conception of a general sort for the term in philosophical problems. The general import of it is too abstract to deal with the real questions at issue between separate schools. When it denotes equally positions that assume an antithesis and positions that assume an identity between "thought" and "reality," it is certainly not clear and concrete enough to suggest any fruitful implications. This is especially evident in the disposition of many idealists to insist, when confronted with the diffi-

culties of denying what the realists have contended for to maintain that Idealism and Realism are not opposed to each other but quite reconcilable. If this be the case there is no special importance attaching to the zealous defence of Idealism, as under such an assumption it can have no power to settle any problem whatever as affected by the very evident issues connected with sense perception. The only hope of clear thinking is to define Idealism and Realism in sufficiently definite terms to indicate what this issue is. This has been done for us historically by various men, one class of whom has contended that we can directly "know" an external world and the other that we can only "know" it indirectly or not at all. There is a point, however, where, in spite of this opposition the two schools practically agree. The hypothetical realist admits that we do not intuitively "perceive" external "reality," and contends that we can "know" it only *inferentially*. This position would coincide with what I have called "objective" Idealism in the tabular classification, so that a clear opposition is found only between "subjective" Idealism, or Solipsism, and intuitive Realism, where the issue between the limitation of "knowledge" to the subject's own states and its extension to an external or objective "reality" is defined with apparent clearness, the question as to the nature of either or both of them being left open for metaphysics to further determine. Without this distinction I would maintain that there is no reason for the assumption of a difference between the two schools in their epistemology but only in their "ontology," which depends on other assumptions than those necessary to test the compass or limits of "knowledge." In deciding the *range* of my "knowledge" I either assume the "nature" of the thing presumptively "known" or I leave that entirely in suspense. Whether "knowledge" does or does not extend beyond the states of the subject to the "perception" of the object is one problem and whether it at the same time cognizes and posits the "nature," material or spiritual, of either subject or object is another problem. As for myself the assertion of *what* a thing is is distinct from the assertion *that* it is. I may have reason to affirm or believe that "knowledge" is either limited to "phenomena" or extends to "reality" other than "phenomena," and yet be ignorant as to how I should characterize, in any other terms, the thing involved in my "knowledge."

The consequence of all this analysis is that I shall assume that the epistemological and the noumenological problems are distinct from each other, even if we admit, as I do, that the epistemological question comes first and prepares the way for clearer discussion of

the noumenological. I merely insist that the doctrine is not predetermined by the epistemological. I shall in all discussions of the issues of philosophy use the terms Idealism and Realism as opposed points of view, in one of their meanings at least, and Materialism and Spiritualism as opposed doctrines in Metaphysics. So far as the conception of these terms is concerned, I shall assume that an idealist may be either a materialist or a spiritualist and the same with the realist. Likewise I shall assume that a materialist may be either an idealist or a realist, and the same with the spiritualist. I merely use the term "Spiritualism" to mean the doctrine that maintains the existence of something immaterial in the world. I am simply following the example and usage of Sully in his recent work. I mean therefore to divide the field of epistemological investigation between idealistic and realistic claims for the sake of studying the facts in the light of one or the other point of view, and for the same purpose to divide the "noumenological" or metaphysical field into the materialistic and spiritualistic claims.

I shall not, however, at this stage of the discussion enter into the merits of any of these doctrines. I have been concerned only with so much of the history and analysis of fundamental conceptions as would indicate how the complexities of these various problems should be approached. By thus indicating the order and nature of the problems to be discussed we are prepared to do one thing at a time in the investigation before us. This whole subject has its preliminaries and these are the clear definition of the issue to be decided. It is not enough to thresh over the old straw in terms that either beg all questions or that show no intelligent conception of the real perplexities which the philosophical student has to face in the controversies connected with the doctrines suggested in the classifications in this and the previous chapter. These perplexities involve a series of connected questions in which the answers to the first do not necessarily carry with them the answers to the succeeding ones. "Knowledge," both in respect of its process and content, is a complex affair and it is necessary to determine the elements of that growth and the order of their manifestation. In this order I shall consider the epistemological as first and independent of the "noumenological" and as not determinative of the result in the noumenological. It is possible also to discuss the process of "knowing" without deciding any choice between Idealism and Realism, but merely ascertaining how that which is at least called "knowledge" is acquired and regarded as valid. This last course, as a matter of fact, is the one that will be adopted, and this purpose demands that I should at least briefly indicate how this can be done.

The first step in the accomplishment of this end, after indicating the theoretical problems involved in the final results of discussion, is the presentation of the psychological scheme upon which further investigation will be based. In all discussions of epistemological systems we suppose certain primary factors in the problem. Sensation is the first. This is usually followed by "perception," memory, association, conception, judgment, reasoning, intuition, etc. Apprehension often does duty for "perception." In English psychology all these acts of the mind, said to be acts of corresponding "faculties" are supposed to be distinguishable from each other in kind. That is, they are assumed to represent distinct functions of the mind and so to be treated as separate elements in the synthetic whole of "knowledge." But I think that this representation of psychological "faculty" can be greatly simplified, and consequently improved to the same extent.

If we adopt a Kantian conception and divide the general functions of the mind into receptive and active, receiving and interpreting functions, we shall have all the cognitive capacities reduced to two general types. Kant of course had three fundamental functions, namely, Sensibility, Understanding and Reason. The last two should be reduced to judgment, as I propose to do here. We should then have sensibility and judgment as the two general functions implicated in "knowledge." But Kant's conception of sensibility included Locke's "reflection," or self-consciousness, the consciousness of our own mental states other than sensations, while the term "sensibility" in English philosophy and psychology generally is either limited to external "experience," that is, sensation, or applies also to certain emotions, and does not connote the "internal" mental states. Besides neither "sensibility" nor sensation suggests the "perceiving" or apprehending act which is so necessary to the conception of "knowledge," but only a relation to both the subject and the object. Hence I think it better to adopt some term which shall comprehend the intuitive functions ascribed to or associated with both sensation and the consciousness of our own mental states. I shall adopt for this the term Apprehension or Intuition, meaning thereby the immediate act of consciousness which presents facts of "experience." A fuller account of it will be given in later discussion. But I shall divide it into two forms in so far as its object matter is either sensation or the consciousness of mental acts other than sensation. For purposes of classification and brevity of expression I shall use the word *mentation* to denote the mental states other than sensory. Sensation and mentation, therefore, will represent the two "phenomena" or states of consciousness which are direct presen-

tations, that is, present as acts and as objects of consciousness. To these I shall add a third which will represent a present state but a past object. This is Memory, or perhaps more correctly, Recognition. These three may be treated as subdivisions of Apprehension or Intuition, or at least as different types of "phenomena" with which Apprehension is associated as the simplest function of "knowledge."

I shall then embrace all other intellectual functions in the term Cognition, or Judgment in the widest acceptation of the term. I dismiss Conception as only a form of judgment and not as a process in any particular unique. Cognition shall represent all the higher acts of the mind in the synthesis of "knowledge." It differs from Apprehension or Intuition in this fact of synthesis which involves the consciousness of relation, as I do not intend Apprehension to imply. I shall subdivide Cognition or Judgment into Perception, Conperception, Apperception, Infero-apperception and Genero-perception. The technical meaning of these terms will be considered in the proper place. But I may remark here that it is possible to treat Infero-apperception, which I conceive as convertible with Ratiocination, as a subdivision of Apperception. I might divide Apperception into simple and complex apperception, the former being equivalent to Judgment in the ordinary logical sense and the latter equivalent to ratiocination, both partaking of the nature of apperception. The scheme of mental function, therefore, to be considered in the theory of "knowledge" may be summarized in the following manner, treating them all as forms of intellection.

- **Intellection.**
  - Apprehension or Intuition.
    - Sensory. Sensation.
    - Mental. Mentation.
    - Mnemonic. Memory, or Recognition.
  - Cognition or Judgment.
    - Perception.
    - Conperception.
    - Apperception.
    - Infero-apperception. Ratiocination
    - Genero-perception. Generalization.

The only reservations and cautions to be mentioned at present in regard to this scheme pertain to the use of the word "sensation." According to the principle implied in its classification it expresses a species of apprehension. But I have purposely described the types of apprehension in adjectival terms to indicate that I do not wish to identify sensations *wholly* with what I mean to express by apprehension or intuition. We shall find on more careful examination that the term "sensation" is often used in a way to distinguish it from the properly "knowing" act assumed to accompany it as one aspect of the total consciousness occurring at the time. But I include the term in the analysis for the purpose of recognizing its fundamental place in

the theory of "knowledge." The main purpose is to secure as simple an outline as possible of the primary functions which I mean to discuss in the investigations of epistemology.

The most of these terms I shall define and explain technically when I come to discuss the problems involved, but there are some important conceptions whose import must be understood in any examination of primary questions. They are not terms which express the functions involved, but which affect the interpretation of the facts connected with these functions, and hence their import should be understood at the outset.

When I use the terms "mind" or "soul" I shall mean a subject of consciousness other than the brain. This, however, is only a definition of the terms. I shall not intend to imply by them that there is in reality any such thing. The existence of such a subject must be treated as a quæsitum, not a datum. But I shall use them to denote a subject rather than a "phenomenon" of that subject, because we have the term consciousness to denote the functional "phenomena" of that subject, and hence I prefer to remain by the historical uses of those terms instead of violently distorting them, as the phenomenalist does when he finds that he cannot admit them into the sphere either of "known" things or of "realities" other than the brain. He ought to see that it is possible to accept their traditional meaning and to deny their existence as supposed, just as men do in the case of ghosts, or hobgoblins or devils. I could make them convertible with the term "subject" except for the fact that I shall use this term for the basis of any kind of attributes material or mental. In psychology and epistemology, of course, subject will always be synonymous with "mind" or "soul," if the existence of this be assumed, but synonymous with brain or organism, if "mind" be not assumed. That is "subject" will be a term indifferent to the theories of materialism and spiritualism in noumenology and merely denote that consciousness has a ground, substratum, or "reality" of some kind of which it is a function, quality, or attribute. It therefore does not exclude the supposition that the organism might turn out to be this as the result of inquiry. But "mind" or "soul" means to exclude the brain or organism by definition, but I shall leave the fact of this open to investigation in my use of the terms.

The term "object" is equivocal. In strict consistency with the more limited import of the term "subject" it should denote only the non-ego, or external "reality." But as a matter of fact it may include along with this also any mental fact as an "object" of consciousness,

that is, a fact with which consciousness may be occupied or which may be the subject matter of its perceptions and reflections. These additional facts as "objects" may be either the "subject" of consciousness itself, the subject-object of Hamilton, or the states of consciousness themselves. The content meaning of the term may thus be threefold, as described. Which of them is intended in any specific case can be determined by the context.

The term "phenomenon" is one that may give a good deal of trouble. It has not always preserved an identical meaning amid the vicissitudes of philosophic speculation. It has formed the basal conception of various systems without being as carefully defined as it should have been and plays a very equivocal part in present thought. But it will not be necessary to unravel the perplexities incident to its general usage, as I shall not employ the term in the earlier discussions of this work to denote anything more than a fact which requires to be explained as opposed to such as may not require this. I shall not limit its import to either the "subjective," or to the idea of "appearance," or to that of "change." So far as epistemological investigations are concerned it may be any one or all of them. I shall use it, until further discussed, to denote any fact within the purview of consciousness, whether subjective or objective, which requires to be explained in some way, it may be as an effect, as an attribute, as an "appearance," as change or an event, whether subjective or objective.

There is an implication associated with the term "knowledge" which it is important to notice. It is the supposition that to be "known" a fact or thing must be "in consciousness," or even must "be consciousness." The expression that "knowledge is limited to our own mental states" has a tendency to create a definition for the term "knowledge" which makes it convertible with the limits of consciousness as a function of mind. This is to imply that to "know" is to "*have" a state of consciousness* as distinct from having an *object* of consciousness other than the state itself. If "knowing" is "having" a state of consciousness, that which is other than this state, or transsubjective, transphenomenal, or objective as external, is not "known," as a matter of course, though absolute certitude characterize our convictions regarding it. We shall have to discuss this equivocation much more in detail when dealing with concrete problems. It suffices here to remark it as a part of the preliminary analysis of epistemological conceptions.

The term "reality" is another which should have the same preliminary consideration. This term has three different meanings which

affect the problem of "knowledge." The first of these is that which is implied in the antithesis between the "real and the unreal" which is the meaning in ordinary parlance and of which a great deal is made by T. H. Green in his discussion of Hume and the problem of Ethics. It is the conception which many of our philosophic students pick up without examining its historical import in the field of philosophy and then use for the interpretation of systems which did not employ it in that sense at all. In this common conception of the "real" the meaning is that of fact, the actual, or the existential as opposed to that which is non-existent or not a fact of "actual experience." Sometimes this is expressed by the distinction between the actual and the imaginary, in which the imaginary denotes what is not a fact of external existence, but only a product of fancy.

Somewhat closely allied to this common meaning is that in which the term "real" denotes one aspect of the antithesis between the "real and the ideal." This is the opposition between the subjective and objective, between the internal and the external. This may or may not coincide with that between the actual and the imaginary. Both the internal and the external, the subjective and the objective, may be actual, or both imaginary. But the internal and the external, the subjective and the objective are not the same, even when we suppose them the same in kind. Hence in the theory of perception, ever since the controversy with Nominalism, the term "real" has stood for an objective or external fact or thing as opposed to what was merely mental though actual. The more general meaning of common parlance was simply disregarded, not denied. It was the exigencies of certain philosophical problems that imposed a technical import upon the term.

This second meaning of the word had grown out of a relation to the preëxisting conceptions of the Platonic doctrine. The fortunes of this should be briefly characterized. In the first place, the problem of Plato was to define the limits of the permanent and the transient, the eternal and the ephemeral. He expressed the permanent by the term "idea" or "form," and the term "matter" was identified with the transient or "phenomenal." The "ideal" of Platonic parlance thus became identical with the "real" of modern parlance, wherever "real" denoted the permanent, or the universal. But in spite of the fact that Plato made his "ideal" the permanent, he still conceived it as a characteristic, a property, quality, function, activity, or modal aspect of a supersensible existence. This supersensible existence he would not call "matter" because he chose to limit this term to the "phenomenal" aspect of things, the changeable or transient characteristic. But

the philosophy of Lucretius completely reversed the conceptions of the Platonic "matter" and "form," and the adoption of the atomic theory in modern thought perpetuated his conceptions of the case while those of Plato did not survive outside the history of philosophy. Lucretius made "matter" eternal and "form" ephemeral. In his conception "forms," "ideas," aspects, modes were the transient resultants of composition, or the compounding of atoms, while the atoms which were material were permanent. Hence assuming that mental phenomena were the activities, characteristics, modes, etc., of the composition of atoms representing the organism the Lucretian philosophy easily decided its attitude on the question of personal survival after death. "Ideas," being activities of a compound subject were phenomenal and transient. Now when nominalism established itself "ideas," being mental modes, became purely subjective and the "real" became convertible with matter which was the objective or external fact, the transsubjective. The "ideal and the real" which were identical in Plato became exclusive of each other in modern thought, and as the "real" in the materialistic theory became convertible with matter which was eternal it suggested the antithesis to describe, in modern parlance, the doctrine of Plato as turning on the opposition between the "real and the phenomenal," or the constant and the changeable. Hence the term "real" is often taken to denote the permanent as opposed to the transient without regard to the question of the subjective and objective. Consequently it is only by adopting the conception of "real" as just defined and the Platonic conception of "ideal" that we can ascribe the Platonic philosophy as identifying the "real" and the "ideal." In Lucretian and nominalistic thought this identity would be denied, but only because the meaning and implications of the terms had partly or wholly changed. In nominalistic psychology where the question related to the distinction between the subjective and objective the "ideal and the real" would express the opposition between internal and external, the mental and the material, as things different at least numerically if not in kind. In metaphysics, especially of the materialistic type where the material and the mental represented the antithesis between the permanent, and the transient, and the "real" was taken for the material, the antithesis which represented the third import of the term "real" is expressed in the terms "real and phenomenal." It is apparent, therefore, from all this analysis that we have in the word "reality" the suggestion of a variety of problems which must be distinguished from each other. In epistemology this problem regards the "ideal and real" in modern parlance, the sub-

jective and objective, or internal and external, in the theory of perception. That is, the problem is to determine whether and how the mind can "know" anything transcending its own states, that is, something at least numerically if not qualitatively different from itself. The conceptions expressed in the antitheses between the actual and the non-existent, the "real and the unreal," on the one hand, and between the permanent and the transient, or the "real and the phenomenal," on the other hand, have no interest or importance in the theory of "knowledge" as so defined. They may have an interest in noumenological problems. But whatever this may be and whatever further discussion may be necessary will be taken up later. All that is necessary at present is to recognize the equivocations of the term "real" and to define the epistemological problem which must be the subject of immediate consideration. This is the limits of "knowledge."

But the "limits of knowledge" is also an ambiguous expression. What I have indicated as a conception of certitude associated with it also becomes connected with the problem of its compass. Usually, of course, "limits" refers to its compass or range. But the demand for what is certainly "known" as opposed to scepticism and incertitude has created the conception that "knowledge" implies certitude, while the controversy about its compass, its inclusion or exclusion of external "reality," has created the conception that it implies a definite content to which it is confined. Both assumptions become confused in the general problem which may be defined as consisting, on the one hand, of a question regarding the limits of certitude, and on the other, regarding the limits of compass or content. Hence in the epistemological problem I shall have to discuss both these aspects of it.

CHAPTER IV.

PRIMARY PROCESSES AND DATA OF KNOWLEDGE.

I HAVE avoided the use of the term "elementary" in the caption of this chapter because I do not wish to imply that the processes of which I shall treat in it are elements of a complex totality. They may be this, and are undoubtedly this in some conceptions of the term "knowledge." But in others where that term denotes so simple and unanalyzable a process as "intuition," elementary would not correctly describe it except we mean unanalyzable instead of a part of a whole by it. But whether the processes and data which I am to consider at present are elements or not, they are certainly primary, that is, prior to the complex conceptions which are denominated as representative of "knowledge." Whether we consider them elements entering into these complex products they are facts which have to be examined either as the conditions of these products or as processes and data involved. Hence it is best to avoid debatable suggestions and to call them primary.

In calling the processes, which this chapter is to discuss, "primary" I shall remain indifferent to the question whether they are elementary or complex. The habit of one school, when speaking of them as "elementary" has been to regard them as "simple" and unanalyzable, and another as highly complex. I am willing to regard them as either simple or complex, according to the relation in which they are viewed. For the problem of "knowledge" which studies mainly the validity of mental processes for truth we regard them as "primary" because we start with them, as sufficiently well known without that peculiar analysis which experimental psychology gives them, to deal with the main problems of reality.

The psychological analysis in the previous chapter represents the fundamental processes of "knowledge" as being intuition and cognition, or apprehension and judgment, with sensation, mentation and recognition or memory as subdivisions or species of the first of these. I have already remarked that I did not mean to consider them as technically such subdivisions, but as facts in connection with which apprehension occurred and the adjectival mode of qualifying the species of apprehension was the better indication of my real intention. Conse-

quently I shall separate here the discussion of these various processes and data as if they were independent problems. Apprehension is a concomitant function of all the others while they have to be considered for the purpose of making clear factors in the general problem of "knowledge" that are not always analyzed or defined with sufficient care and reference to fundamental issues. I begin with sensation.

Sensation.

Philosophers and psychologists are practically agreed as to the chronological place of sensation in the problem of "knowledge" and as to its primary importance. The dispute, when there is any, turns about its content and significance. If we had any evidence that some other state of consciousness initiated "knowledge" we could depreciate the importance of sensation. But it appears, according to general agreement, that sensation must be prior to the exercise of all other functions of mind, and whether this be strictly true or not, it is certainly possessed of an origin that suggests this and must be discussed accordingly.

Assuming that it is the prius of all intuitive and cognitive "knowledge," there are two questions regarding it to be considered, namely, (1) its definition, and (2) its interpretation, or its relation to the general content of "knowledge."

It may be doubtful whether there has been any uniform conception of the nature of sensation. It is a "phenomenon" so related to others in temporal juxtaposition with it, that confusion could easily occur regarding it. This sometimes takes place when the question arises whether sensation shall be treated as a state of consciousness. In some systems of philosophy "consciousness" is so conceived as to imply that sensation is not such a state and it tends to become identified with the supposed neural processes antecedent to and conditioning consciousness. But I suspect that this conception of it grows out of the desire and necessity of distinguishing it from what is called "perception," on the one hand, and that conception of "consciousness," on the other hand, which more or less identifies consciousness with "self-consciousness." But if we simply conceive or define "consciousness" to be that concomitant mental act which is itself, or is aware of any or all facts of "experience," or as Hamilton calls it, the "complement of the cognitive energies," we shall have reason to regard sensation as one of the facts accompanied by "consciousness," or as a state of it. I shall so regard it, inasmuch as I conceive "consciousness" to be the most general and essential functional activity of the subject and representing that *awareness* of facts, not merely awareness of self,

which distinguishes it from what is regarded as unconscious and physical.

I mean therefore to conceive sensation as a state of consciousness. But our difficulties begin when we attempt to distinguish this state from others in the same group. When we define an object, fact, or phenomenon we are expected to name its conferentia and differentia, its essential characteristics, both common and distinctive. Thus I may define a "stable" as a building qualified for the housing of animals; "water" as a liquid composed of hydrogen and oxygen; a "newspaper" as a medium for the publication of daily events; a "horse" as a vertebrate animal, etc. These may not be technically accurate, but they illustrate sufficiently the principle which I wish to emphasize and which is recognized universally as necessary to proper definition, namely, that it must distinguish the thing defined from the others by specifying the qualities which are common to it and certain others and more particularly those which are not common, but differential. This condition is exemplified in the illustrations given. The qualities defining and distinguishing them inhere in the object defined. They do not express relations to something else that may be variable, but properties of the thing defined. Now it must be said of sensation that it is impossible to define it in this way. We can name its general characteristic, that is, consciousness, but we cannot name its differentia as a quality of the "phenomenon" defined, and hence there is a sense in which we have to say that sensation cannot be defined. But we can distinguish it sufficiently from other mental states by indicating one of its differential *relations*, and then leave to the individual's introspection the recognition of what is meant. With this explanation I shall define sensation as *that state of consciousness which is produced by the action of an external stimulus upon the subject of it*. This definition, if such it can be called, sufficiently distinguishes what we are talking about from such facts as "perception," memory, emotion, association, self-consciousness, etc. We have a fixed relation to stimulus as the determinating factor of its distinction from other mental acts.

But however acceptable this definition may be it is not self-explanatory and it does not remove all difficulties in the determination of its full meaning. We require to examine more explicitly the peculiarities of the "phenomenon" so defined. The fact is that sensation, whether we define it as I have done or in any other way, is an exceedingly abstract term. It is a double abstraction as defined. The stimulus is not an integral part of the "phenomenon," but an independent and related fact, so that sensation thus defined is simply an element or term in a

series of facts. Apparently at least, it cannot be conceived apart from this environment. But this aspect of its abstract nature gives very little difficulty when compared with the second, which represents it as a *general* concept, not a concrete member of a series, a view of it which might be regarded as very clear in spite of its abstract character. But it is a general concept which comprises in its extension such different "phenomena" that when we seek for a common characteristic we can find none but this relation to an external stimulus, and *this is not a characteristic of the "phenomenon" at all.* It is simply a uniform and necessary concomitant and condition of its occurrence. Hence it is extremely difficult to give any clear idea of the term's meaning except by illustration, and this is to appeal to more specific and concrete facts of "experience," and so to name the phenomenal reactions of the special senses in each case. We should have to name sensations of color, sound, touch, etc.

When it comes to specifying illustrations of what is meant by the term sensation the origin of the word and its associations in common "experience" prompt the habit of indicating tactual "feelings" as the proper representatives of it. Whatever we may think of the inadequacy of such "phenomena" to express all that we mean by the term, the natural tendency is to illustrate the case by an appeal to touch and any illustration tends to leave the impression of convertibility in those terms, as this is all the definition that common discussion employs. But when we come to strict psychological and epistemological discussion it is apparent that such a device will not avail much. We have to include other sensory "experiences" in our conception of the term. It applies, according to the definition adopted above, to visual and auditory phenomena as well as to tactual, sapient, and olfactory. Now it is characteristic of our tactual sensations that they are definitely localized on the periphery of the organism while those of vision are not so localized, and perhaps those of hearing are not so localized. Vision, as Hamilton remarked, is usually conceived as a percipient sense rather than as a sensational organ or sense. We do not directly distinguish between the sensation and the thing "perceived." In fact we are apparently not aware immediately of the sensation as defined, but only of the so-called object of "perception." In touch, whether we are any differently qualified to pronounce upon the situation or not, we generally at least, try to distinguish between the sensation and the object or stimulus causing it. It may be with the help of vision and visual "experiences" in the past that we are able to so represent the matter to the mind, but whatever the origin

of the habit it is certainly one that is very common, namely, to localize the tactual sensation on the organism and the cause or stimulus as external to this, so that from the standpoint of touch we have a conception of the distinction between sensation and its cause which we apparently do not have in vision. In fact we might say of vision that we never are aware of the sensation at all, but only of the object or stimulus, at least as common sense usually conceives the case. The tendency to test one of the senses by the other, the reliance we have on vision for all anticipations of tactual "experience," and the assumed "objectivity" of causes to effects, lead to such an association of touch and vision that in our commonly accepted conception of the matter the tactual object is a visual percept and the sensation an affection of the sensorium while in vision the object is a visual percept and no "feeling" of a localized sort appears in consciousness, at least in any way analogous to tactual sensation or suggesting that idea of sensation. But when we are reduced to each individual sense for the determination of the object we find that, in touch, we either cannot distinguish between the sensation, affection of the sensorium, and the object, or we have to deny the resemblance between sensation and object, making the latter "unknowable" in terms of the former. In hearing there is no definite localization of the sensation and only an associative or inferential conception of the object, interpreting "conception" in the representative sense of resemblance in kind. In vision we have seen that there is no distinction between sensation and object, but only because there is no "sensation" in the sense which that term bears in touch. The other senses exhibit in various degrees the same phenomenon. The consequence is that when we come to examine the common quality which shall define the term "sensation" in all sensory "experience" we find that the only conferential or common fact is a relation to stimulus, and *this is not a quality of the sensation at all.* This relation indicates the object having a constant reference to the sensation and this constant reference may be used as evidence of the fact about which we wish to reflect when discussing sensory "experience." That is to say, nothing will make clear or intelligible what we mean by the sensation but an illustration or a personal "experience," since we cannot mention the associated synthetic characteristic of it which will identify it, but only the associated synthetic cause which is no part of its constitution. The conception of sensation is thus the most abstract possible, the so-called common quality being nothing but a common relation to stimulus. But two facts still more highly refine this abstraction. Firstly, the stimuli do not appear to be, and certainly

are not conceived to be, the same in kind. Secondly, when the "phenomena" of sensational "experience" are carefully examined we analyze or reduce the localization into a reference to the sensorium which we do not localize at all, but leave it indeterminate between the periphery and the center of the neural system. The consequence is that, when we have eliminated the adjuncts of sensation which are no constitutional qualities of it we have left nothing in conception but a "subjective" phenomenon. The assumed "representative" character of the sensation is lost, and if once the principle of causality is disputed the necessity of supposing an external object is eradicated.

This situation is the paradise of scepticism. It has only to take the definition of sensation advanced by "common sense" to show that the external object assumed by that point of view is not contained in the thing defined, and when it appeals to the phenomena of illusion in sense perception it easily discredits the convictions or "knowledge" associated with and assumed to transcend sensation. What we seemed so certain of before this critical investigation dissolves into the nature of an hypothesis of inference, by supposition, and an hypothesis or inference is always assumed to have some measure of uncertainty about it, a likelihood of being false. Whether this be the correct conception of the case I do not at present need to inquire, as I am concerned only with the fact that this interpretation of the situation has existed as a fact, and it was made as the logical consequence, presumptively, of the definition of the "natural realist." It is this peculiarly confusing condition of things which gives rise to the epistemological problem regarding the existence of external reality. At first and before any special analysis of the primary data of "knowledge" had been made the existence of an external "reality" was taken as an immediate datum of the same state of consciousness as the sensation, but the gradual generalization of the meaning of "sensation" and the exclusion of the object from its true content left the inquirer without the right to deduce his object from the defined nature of his sensation, and scepticism won the victory.

But the situation created a tendency and scepticism made an admission which requires some notice. The analysis at least seems to show the elimination of the object from direct "knowledge." The sceptic admitted the "knowledge" of sensations, and by this "knowledge" he meant the certainty of this fact at least. But to both classes of thinkers, the sceptic and the "natural realist," there was necessarily a peculiar incident about this "knowledge." There was some sort of identity between the act and its object, the mental state and the

thing "known." Before sceptical analysis had been applied there was a difference assumed between them. The object or cause of the sensation presumptively existed "outside" the sensation, that is, outside the organism or sensorium. Externality to the sensation, "auseinander," was the conception used to interpret the meaning of the fact of "experience." But this antithesis could no longer be assumed when the object was eliminated from the datum immediately "known" and in its stead there came the assumption that the "knowing" and the "known" were the same thing, at least in respect of time, and also of space if that could enter into the conception of the matter, and it does enter into it when the conscious localization of the sensation in the periphery is admitted into the account.

It is out of this situation that the various theories of perception have originated. The ineradicable believer in a "real" world other than sensations and external to the subject resorts to "perception," "apprehension," "intuition," "instinct," or other functions to give what he is forced to admit is not given in sensation. Now it is not my purpose at this stage of the discussion to examine the nature or the validity of such suppositions but only to indicate that they are inventions to supplement the supposed defects or imperfect capacities of sensation, and that the device gives rise to the general supposition of "higher" functions for the assertion of "knowledge" than sense deliverances. The examination of them will be made further on in this work. At present I am engaged in ascertaining what conception must be taken of sensation as a preliminary process or datum of "knowledge," and having seen that the anti-sceptic tends to supplement the nature of sensation by other functions for the purpose, I merely wish to remark that he tends to change the very conception of "knowledge" to the same extent by including in it, not only the object which has to be excluded from the content of sensation, whether he regards it as representative or non-representative, but also a non-sensory activity. But the sceptic still has a consideration of some importance in the solution of the problem. Though he admits or seems to admit the definition of the realist, he does so either for *ad hominem* purposes or for the purpose of insisting that the discovery of such an object or cause of sensation is a later adjunct of consciousness and not an original datum of that which is so defined. This is to say, that the definition represents the conception of the adult mind and lays too much emphasis upon the relation to stimulus as the criterion of what the sensation is or when it occurs distinct from other mental states. Now just in proportion as the sceptic discredits these adjunctive functions as deliverers

of "knowledge" or certainty as to the fact and nature of its object, just in the same proportion does he limit "knowledge" to sensation and indicates that the problem is to legitimate the assertion of external objects and not to assume that legitimacy and invent non-sensory processes or terms to explain the "knowledge" of them. He tends or appears to confine certain and valid "knowledge" to sensation and mentation, making the former quite as subjective as the latter. "Knowing" and "being," or "knowing" and *having* mental states appear to be the same in this conception of the terms and to be subject to the limitations of what is meant by the term subjective. That is, the sceptic applies the predicate of incertitude and of liability to illusion to the objective, or even questions its validity altogether.

I shall not at present undertake the criticism of this position, as I am rather interested in stating what the problem is. But there are a few things in the way of qualification that are necessary to remark in order to understand the limitations of the sceptic's doctrine and its relation to the theory which it is supposed to dispute. In the first place, the sceptic must accept some other function than sensation as a condition of interpreting even in an *ad hominem* way the definition of the "natural realist." He must trust the certitude of the process by which he concludes from the accepted definition of sensation that its limitations are what he assumes. If not, he cannot impeach the "knowledge" of external objects. His very scepticism is based for its value and cogency upon the trustworthiness of intellectual functions other than sensation when he interprets the limitations of sensation according to the definition, to say nothing of his theory to account for ideas by association whose existence he admits but whose validity he wishes to impair. He can effect his object only by accepting the validity of reasoning and the logical processes generally. This is accepting a conception of "knowledge" as certitude which is distinct from sensation. In the second place, the sceptic has to assume that the act of "knowing" the sensation itself is not the same as the sensation. It may be numerically identical (*numero eadem*), that is, it occurs in connection with it and is so associated with it as to be inseparable from it in time, but it is not qualitatively identical (*arte eadem*) with it, but functionally different in kind. The functional discrimination between sensation and other mental states that are not sensation is an act which cannot be identified with the sensation, so that even if we are supposed to have the limits of "knowledge" determined by the limits of sensation excluding the presentation of external objects, the act of "knowing" is different in kind from the sensory reaction

against stimulus and is not to be confused with it, though it is a simultaneous act. Hence "knowing" and "being" are not the same functional facts though they coincide temporally, and the sceptic has to accept a process of consciousness for "knowledge" which he cannot limit to sensation even when he excludes external objects from the content of sensory "experience" and the assumed certitude belonging to this "experience." This consciousness is an apprehensive act which is far more fundamental to "knowledge" than the sensation, even though it depends for its occurrence upon the same conditions which give rise to sensation. In both the ratiocinative and apprehensive processes which the sceptic thus admits he coincides with the "natural realist" in the assumption of functions that are not convertible with the sensory in nature when he conceives "knowledge" both as certitude and as a function.

This position assumes that sensation is a term of deeper abstract import than appears on the surface. It is not only abstract as being the generic term for phenomena that have no common characteristic, but only a common relation to assumed stimuli of an external kind; but it is also abstract in the further sense that it does not express the whole process which takes place at the moment, but only a part of it, the complement being the apprehensive act which represents the really "knowing" part of the whole.

Further discussion of this question will be taken up when the theory of external "reality" is considered. All that I am at present concerned to remark is the fact that the sceptic virtually admits that there are other mental states implicated in the act of "knowledge." The validity of such processes will come under consideration again. The point at present is to determine the limits of the meaning of sensation as a term denoting a datum in the theory of "knowledge." This limit is expressed in the fact that it is not only a subjective event, not including a representative idea of the "reality" supposed to occasion it, but also a "feeling" or state that is not conceived as a discriminating consciousness but as a reaction of some kind, however closely related it may be in fact and conception to the apprehensive act which is aware of it or temporally identified with it. That conclusion regarding it enables us to recognize that we have not determined all problems by merely concentrating attention upon an event assumed to be simple and a chronological prius of other acts, but which is simple only by abstraction and a prius only of certain complex processes still to be considered. The trouble has been that various thinkers of both the sceptical and dogmatic schools have treated the question as if it were a

problem of "origin," of chronological genesis, and implied thereby that the chronological prius was the best known and that the latter was dubious or less certain. That is to say they assumed or admitted that the acts superimposed temporally upon sensation, whether as inferences or "perceptions," were less certain and more exposed to invalidity than the first "experience." The problem of certitude and validity was made convertible with historical genesis, an assumption which present psychology will not admit for a moment.

General psychophysical considerations in regard to the simplicity or complexity of "sensation" I do not consider as important. I am here concerned with the meaning and content of the phenomenon for the problem of "knowledge" as related to objects other than the sensation and not with the question of its sensory nature, simplicity or complexity, a matter affecting only its elements and variations of content as a "phenomenon," and not its general relation to cognition, even though these facts have a bearing upon *what* we know in metaphysical problems. The primary and fundamental problem is to determine the meaning and limits of all sensations, simple or complex, their relation to the general problem of "knowledge" concerned with "reality." This meaning and limit I conceive to be its nature as a primary event in the analysis of that whole which is usually comprehended in the term "knowledge" as a larger totality than mere sensation.

We may concede to the sceptic the right to demand that it is the validity of "perception" that is in debate when considering the question of an external "reality" and that this cannot be assumed to be representatively given in the sensation, whatever we may say or think about its certitude as indirectly ascertained or believed. Various facts point to the rationality of the supposition that the conception of external "reality" is an adjunct to the sensation which cannot be clearly defined without mentioning its relation to such a fact, and, if the sceptic be admitted right in the matter, is an adventitious adjunct with less certainty attached to our convictions regarding it than to our mental states including sensation.

Mentation.

I shall employ the term "mentation" to denote those mental states which are not sensations, but which may be objects of apprehension or self-consciousness nevertheless. I refer to such acts as are named "perception," imagination, reasoning, association, etc., conceived merely as events happening, and not as functionally involved in interpretation. The phenomena that I have in mind can all be compre-

hended in the one term self-consciousness and are simply what we are aware of as going on when we turn consciousness upon itself. Locke used the term reflection for these "simple ideas." They do not require any elaborate definition and analysis or criticism, as in the case of sensation, because there is no such issue as that involved in the nature and meaning of sensation. They are never defined with reference to an object external to them. All parties agree that they are purely subjective acts and may not indicate any relation to an external cause at all. They are admittedly "known" immediately or intuitively and are in no way amenable to the functions of inference or functions like it in the determination of the facts. They are universally accorded the nature of "knowledge," at least in respect of certitude. They do not exhibit that variety of form which characterizes the various sensations. The concrete instances of them may be far more numerous, but I refer to their form. There are at least six distinct senses, including the thermal of recent discovery, and the unequal relation of these senses to "reality" and the influence of association on the conceptions which we form of their individual and collective functions in the complex of "knowledge," makes sensation a complicated "phenomenon" in its meaning and relations. But the internal states, in spite of their innumerable concrete instances, are all of one kind, simple acts of introspection into the states of the subject whether they be sensations or other facts of consciousness. There is no question of their non-complication with problems of the external world, at least directly. There are incidents that separate them indubitably from that kind of connection with external "reality" which would raise the query regarding it as in sensation. They are such as the influence of attention and association upon the events that are so introspected. The stream of purely mental states in imagination, in subjective reflection, in dreams, in recalling the past is so affected by the subject's own power over its course, either directly or indirectly, that we do not suspect, and cannot be made to believe, that it is produced in precisely the same way that sensations are produced. There is a constancy of causal nexus between given sensations and their stimulus, along with the independence of sensation from the arbitrary control of the subject's will, at least directly, and also a *quale* in the consciousness itself, that quite distinguish the internal "experience" very clearly from the externally produced "phenomenon," while the unity of the internal states is so conspicuous that there seems to be but one definite type of event which is easily defined as the consciousness of the subject's own states both internally and externally occasioned and also as distinct

from each other in this respect. In so far as they are intuited as events to be referred to something as their ground or cause they are precisely like sensations. They are "phenomena," even if they are also acts of "knowing" to be described as cognitive judgments and reasoning. In so far as they are conceived as mere facts of observation they are data for "knowledge" of a more complex kind and are not that "knowledge" itself. This is the conception which I wish at present to take of them. What their meaning is, what the interpretation and explanation may be it is not necessary even to suggest at this stage of our inquiries, but only the fact that they have to be distinguished from sensations in very important characteristics which suggest that we must either admit a very great elasticity in the term "knowledge," as compared with the tendency of the sensationalist to limit it, or find some other term with equal implication as to certitude and compass and involving processes quite as valid transparently as sensation.

It is this last circumstance which it is most important to notice. The admission of self-knowledge, of introspective states other than sensation and other than *of* sensation is the admission of functions involving "knowledge." The sensationalist, from the important place occupied by sensation in the early stages of mental development, tends to identify "knowledge" with sensation, if he is a sceptic, because he does not stop to reflect what it is even in sensation that can properly be called "knowledge," namely, the consciousness part of it as an active function of apprehension rather than that aspect of it considered as a reflex of stimulus. It is the sensation as a content, as an object, an ultimate fact of "experience," that he has in mind, and so is thinking of the *datum* rather than the *process*, of the things "known" rather than the act "knowing." But in dealing with the purely subjective states of reflection not necessarily instigated by external stimuli, he has only the function of consciousness to think of and in this situation it is inevitable that "knowledge" should partake of a meaning quite different from sensation as an effect. It suggests the existence of other, perhaps higher, functions than those implicated in sensation alone and exclusive of the intuitive act of apprehending a fact as a fact of consciousness. The admission of such functions opens the door wide to the extension of the conception of "knowledge," both as regards its assurance and its content, beyond the limits assigned to it by the exclusion of an external world from the content of sensation. We may adopt the language indicating the limitation of "knowledge" to "phenomena," but when we have admitted other mental functions than

sensation in the action of consciousness, unless we can give the same kind of evidence for its subjective limitations that we have in the case of sensation, there is nothing to prevent the belief that they have the capacity to supply what sensation does not supply, and this has actually been the course taken by philosophers. A conviction so ineradicable as the existence of an external "reality" has to be explained, whether it be illusory or not, and if it happen to be firm and tenacious as the confidence in our own mental states, its validity is likely to be accepted as a foregone conclusion and consciousness analyzed in a way to present the process qualified to justify the conviction, when sensation is shown or supposed to be disqualified for it. The existence of other functions of "knowledge" than sensation is at least presumptive evidence that such capacities exist. There is no reason for limiting the capacity of consciousness to "know" except the assumptions which have arisen from the illusions associated with the synthesis of sensory data, but as similar perplexities do not betray themselves in normal internal states there is nothing against supposing that it is the very nature of consciousness as intuitive, apprehensive, or cognitive to "know" more than itself, that is, to have a meaning extending to the assertion of a "reality" beyond the area of its own "phenomenal" nature. Whether this supposition is justifiable is not here the question, but only the strength of mental temptation and the pardonable mental interest in a belief so cohesive and firm as that in the existence of external "reality." If there were no mental states but the sensory whose limitations seem to be so thoroughly demonstrated, scepticism would have had everything its own way, but a difficulty like the denial of an external world is only the motive for the analysis of consciousness in a way to admit the validity of its judgments both as regards the existence of illusion and the conviction that sensation can be transcended in some way. Any other alternative means for most minds the distrust of all convictions whatsoever. Hence if the opportunity offers in the admitted existence of active powers of consciousness to suppose that it is these which are instrumental in the "perception" of external "reality" and not the sensation scepticism can vindicate its own distrust only by proving the same limitations in these powers that it assumes in sensation. It may be able to do this. I am not at present interested in disputing the fact, but only in calling attention to a circumstance which suggests that "knowledge" may be either more originally complex than is usually assumed or its later complexity is not an evolution out of the simple but a synthesis of functions whose individual elements do not develop in parallel lines.

However this may be, it is clear that the admission of mental states other than sensation into the domain of "knowledge" so widens the import of that term that no apriori presumptions against trans-subjective processes can be proved by the limitations of sense.

Memory.

Memory is a somewhat uncertain term. It does duty for the process of recognizing a past event and also for all those real or supposed facts which succeed the original impression and precede its recognition, and these facts are usually called Retention and Reproduction or Association. As both of these facts, retention and reproduction, represent subconscious conditions they have no place in the primary data of "knowledge." What I wish to deal with here is memory as a mental state involving the consciousness of the past, a process or phenomenon quite different in some respects from sensation and other forms of mentation. This difference may be nothing more than the element of past time while in the other instances it is present time only, but it is an important difference even if it is nothing more than the admission of the element of past instead of present time. But what I wish to note in the conception of memory is its immediacy, its directness and freedom from ratiocinative character. Its simplicity as an act may be subject to doubt, if we take the mnemonic consciousness in its adult form, where the act is often very closely associated with the exercise of other functions, which are to be considered later. But it is not the complex state of comparison with the past that I am now considering, but the simple act of recognizing the past, even though it be an abstraction to conceive it so. This recognition is an irreducible act and in that respect is an ultimate fact of consciousness and it is this characteristic which I am defining and which I wish to treat as a fundamental element in the more complex functions of "knowledge."

In the looser application of the term, Memory is complex, since it is taken to comprehend all the processes and conditions connected with it. They are Retention, Redintegration, Representation or Imagination and Recognition, but the only element of any importance to the epistemological problem is the recognitive function which supplies that factor in "knowledge" involving the past as a datum. We have in this recognition, or consciousness that an element in the present state is a reproduction of the past, a "phenomenon" that is as ultimate as sensation and any other elementary fact of mentation. It is not resolvable into a complex of simpler and non-recognitive acts. It is the primary condition of all "knowledge" which affects to determine the

unity of phenomena in time. I am not concerned with the problem of the validity of recognition, as that must be a subject of consideration in dealing with the general question respecting the criterion of truth. I have in mind here only the mnemonic function as datum in the exercise of other activities in the production of complex "knowledge."

Apprehension.

As I have hesitated regarding the consideration of sensation, mentation and recognition under the head of Apprehension, owing to the possible misunderstanding of their nature and relation to the questions involved I must examine the subject of Apprehension very fully and perhaps in a way that will suggest an actual revision of what has been said about the previous processes or functions. This warning to the reader is necessary because of two facts. Firstly, the prevailing habit of psychologists and philosophers outside the movement started by Kant, has been to define and discuss sensation and mentation or "internal sense" as chronologically prior to and conditional of apprehension. That is to say, they have at least permitted the impression to arise that apprehension was a distinct function of mind which might be later in its manifestation, if not its origin, than sensation as well as representing a function capable of having an object of "perception" which the others did not have. Secondly, the manner of treatment which I have given them rather suggests the same conception, as I purposely put myself in the attitude of this school to study the phenomena so considered in as much isolation as was possible, just as if these functions could be conceived as distinct in time and meaning. In saying this, however, I do not intend to imply that I adopt the other position at present, because I am not going to define the issues in any way to beg questions between the two schools. I wish only to reserve my judgment in the discussion so as to study the facts as independently as possible of the technical controversies that have gone on between the two schools. I shall therefore proceed to define and illustrate the function of Apprehension as I intend to use the term, as if it were a distinct function from those already considered, which it may or may not be so far as I am at present concerned.

I think different schools have given Apprehension different ranges of capacity, some including in it the "perception" of external "reality," others limiting it to the consciousness of "phenomena," according to their philosophic view generally. This circumstance makes it difficult to present a definition without becoming complicated in suggestions and associations predetermined by the controversies and conceptions

of these various schools. I intend, however, to avoid identification with either of the two generally opposing disputants in any definition that I adopt, even if it be embodied in the language of one or the other.

It is probable that the mental interest which tried to escape from certain doctrines of scepticism has given rise to the various ways of regarding apprehension. On the one hand it was not possible to escape the admission of error in various complex mental acts like judgment and reasoning, and on the other, the limitations of sensation, could not be disputed. Hence the real or apparent necessity for distinguishing a function for obtaining the actual certitude which we have in many of our conceptions and which we are not disposed to surrender. This situation has seemed to make it convenient to apply some term like Intuition or Apprehension to a process lying between sensation and the various complex processes usually denominated as judgment, apperception and reasoning and which would be devoid of the objections to all of them, as sources of certainty. Something was wanted for the expression of directness or immediacy and certainty at the same time and it was assumed that apprehension or intuition supplied this want simply by giving it that definition. The difficulties, therefore, which I have to approach in the definition of the term arise out of the danger of being involved in conceptions and associations which I wish to exclude from the term, and which may be comprehended in the following three facts: (*a*) the difference of opinion in regard to the nature and range of the function so denominated; (*b*) the equivocal import of the term in both common and psychological usage; (*c*) the elementary and fundamental character of the act as often or usually conceived. To define it in one way would be to beg the question of philosophy with one school, and to define it in another way would be to beg the question with the opposite school. Thus to make it the act by which we immediately know an external "reality" as such might offend the sceptic or transcendental idealist who may not care to admit the direct "knowledge" of an external world. To define it as a combining process merely would offend the realist and conflict with the nature of the various synthetic ideational processes involved in the higher intellectual acts. Again if it be a simple and ultimate act of mind, immediate and irreducible, some will tell us it is not definable at all, but that it is like any absolute which is not subject to analysis and definition of the ordinary kind. But in spite of these real or supposed difficulties and variations of view there is one common characteristic by which every conception of the term may be denoted, and which does

not require us to take sides with any special school of philosophy regarding any supposed implications. This meaning of the term will comprehend the elementary characteristics of every mental act in which a fact of any kind gets recognition or a place in consciousness.

Apprehension, therefore, as I shall define it and as I shall use the term, is that *act of the subject by which it becomes aware of a fact as distinct from its occurrence and our interpretation of it as an occurrence.* This definition of it clearly distinguishes the act from reflex actions which take place in the same organism but are not conscious or accompanied by consciousness, and also from that conception of sensations which describes them as passive responses to stimulus. Apprehension is supposed to be a *positing act*, sensation a condition. But whether we can distinguish the two or not from each other Apprehension is here defined as the consciousness of a fact rather than the mere occurrence of it. Where it becomes intuition of one's own states it gets the name of self-consciousness. It is the act of "perceiving" in connection with any state of consciousness recognized as a fact or "experience."

Let me illustrate. The consciousness of a color, of a sound, of a taste, of a tactual feeling, of an act of memory, of an act of attention is an apprehension. I do not say that the consciousness of a tree, of a horse, of a mountain, etc., is an apprehension, as such examples will come up again under another process. I confine my conception of the intuitive act to the simplest possible object of consciousness. I may name it an individual simple quality, as given in sensation or mentation. I would distinguish apprehension, as I define it, from the mental act "perceiving" *that* any of these simple qualities were such. Hence I mean to call attention to the circumstance that we may and perhaps must distinguish between the consciousness of a color, sound, etc., and the consciousness *that* these "percepts" are color or sound. The consciousness that a color is a color either involves the discrimination of this object from others, or is so closely allied to the conception of such discrimination, that I must at least allow for that possible interpretation of it and make clear that I mean to exclude from the apprehensive act all discrimination from it and assimilation of other objects to it. If there is no distinction between the consciousness *of* a color and the consciousness *that* the color is such, then I am willing to identify the two forms of statement, but only on that condition. What I want clear is the distinction between the mere consciousness of a fact and the consciousness that this fact is discriminated from or compared with another, and to limit the proper meaning of apprehension

to the former act. I exclude from its objects all such complex wholes as "tree" "horse," "man," "world," "government," "religion," etc., though the "*concept*" of any of them as a represented image, or as some conceived quality representing them, may be an object of apprehension and so indicate such an act. But the full meaning of the "concept" as a name for a group of qualities and relations will not properly be an object of apprehension, unless simultaneously represented in consciousness, which may be impossible. However, refinements aside, the clear conception of the limits of the process is found in the simplest possible object of the act and this will be the simple qualities of sensation and mentation.

Before we go any farther in this matter it will be important to examine the relation of this process as defined to sensation. I have indicated that any particular sensation in the consciousness of the fact is an apprehension, and it is necessary to ask how I would distinguish between sensation and apprehension. Is there any difference at all? Are we not simply using different words for the same thing?

In reply to these questions it must be said that we have at least to illustrate the two terms by precisely the same facts. Sensation is a name for the same temporal state of consciousness as an apprehension, when illustrated by the "phenomena" which we call sensations. Now as this latter term has come to exclude the external stimulus from its meaning, that is, as we cannot consider that the stimulus is any part of the thing denoted by sensation or included in it as a "phenomenon," we have to conceive it as a state of consciousness, as in the definition. As a state of consciousness therefore sensation cannot be distinguished from apprehension, since consciousness is itself a name for awareness. If the terms, sensation and apprehension, have any differences of import they seem to be slight and to be found in their associated implications rather than in the facts or phenomena which are their essential meaning. No doubt some associated implication of an external world is connected with the term sensation, its relation to the external, its conception as an effect of stimulus, but these are no part of the "phenomenon" conceived as a state of consciousness alone. Whether it is possible to conceive sensations as unrelated to an external object is another question. But we certainly do not suppose or conceive them as either representative of such objects or as constituted by them, but as constituted by the state of consciousness which is so named for the purpose of distinguishing it from states which have no such apparent cause. Within the limits of sensations therefore apprehension denotes the same facts and if it has any difference of import at all it lies in its

direct implication of reference to an object, not necessarily external, but simply an object of consciousness if only the mental state itself. That is, it expresses awareness, "perception," the immediate consciousness of the fact which the term sensation names, and when we come to examine carefully what we mean by sensation as a certain type of consciousness we find our conception so implicated with this awareness that, but for certain historical associations in philosophical theories we could not distinguish between sensation and sensory apprehension in any respect. At the same time there is a difference between the two terms, but it is not a difference of qualitative import. It is a difference of range or extension. Apprehension comprehends the "perceptive" consciousness applied to other states besides sensation. All the acts of mind or subject directly aware of themselves are apprehensions. That is, all our mental states may become objects of the particular process which we call apprehension or intuition as facts of "experience." Hence the term has specific reference to the simple act of "knowing" without regard to content "known," the act which directly in presentation is aware of a particular fact or facts as "experience" at least. The range of this goes beyond sensations and takes in any state of mentation whatever, so that apprehension differs from sensation only in the range of its application. It is the common factor of sensation and mentation, and the one that gives sensation its meaning as a state of consciousness.

The consequence is that I shall make no such distinction between sensation and apprehension as is customary with those who regard them as distinct functions of mind. Neither shall I definitely identify them as functions. I do not consider that the problem of "knowledge" requires either their distinction or their identification as functions, assuming as some do that they may occur independently of each other. Even supposing them different functions they are so articulated that, so far as the problem of "knowledge" is concerned, they may be treated as the same fact in the field of sensation. In that field they are certainly the same numerically and thus indistinguishable, whatever else we may suppose them to be. We often find sensation so described and defined that it appears as something antecedent to apprehension and consciousness, and wherever this meaning prevails there is the tendency, when forced to explain, to conceive the fact as identical with the neural action which is neither constituted by the consciousness we know nor accompanied by it, as reaction time indicates. But the moment that we are interrogated we adopt the conception that sensation is a state of consciousness and we arrive at the position which

compels us to identify the fact of sensation with apprehension in time at least, if not as a function. The only reason for ever implying a difference between the terms is in the fact that we generally conceive sensation as an object of apprehension without ever conceiving sensation as having an object, while we always speak and think of objects as different from the acts of consciousness which refer to them. That is, act and object of reference are supposed to be different from each other, while sensation is only a state conceived without special reference to an object, even though we conceive it in reference to a subject as its ground. But I think that this subject in consciousness is an object of reference, so that again the sensation becomes identical with an apprehension. Consequently I shall not treat them so far as epistemology is interested, as qualitatively different but only in range of application, the essential characteristic of apprehension being the same as that which makes even sensation interesting and important in "knowledge" and only its application to states not uniformly associated with external "reality" affects its range of meaning, not its nature. It will be seen, therefore, why I have spoken of sensory, mental, and mnemonic apprehension in the analysis of the problem.

What has been wanted in the discussion of the problems of epistemology is a term to distinguish a certain process from other processes having a more complex content or implications, and one that could be synonymous with a degree of firmness in conviction that is not always associated with certain other mental acts. Apprehension has consequently denoted a process to be clearly distinguished from all the synthetic processes of intelligence such as perception, conperception, apperception and ratiocination. How it is so distinguished will appear when these are discussed. But I may make its meaning clear by distinguishing it from association and inference, assuming that these are sufficiently clear at present not to require definition, except that I must refer to that ambiguity of the term "association" which makes it now equivalent to conscious synthesis, or simultaneous holding of more than a single object of consciousness, and now to mere reproduction of the past which is unconscious and not synthetic at all, so far as present objects in consciousness are concerned. The first of these meanings is a form of apperception as I shall define it. The second is simply the act, all unconscious, which calls up a past fact some way or other related to the one present in consciousness. Thus to illustrate both reproduction and inference, I have a present sensation of yellow color of a certain specific character. Association or reproduction simply calls up in consciousness the past "experience" or

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sensation appropriately related to the present one. It does not compare them and it does not interpret them. The past "experience" may have been connected with an orange. The recall of this past and its relation to a subject is not the necessary interpretation of the present sensation. But if we *infer* that the present sensation is caused by the same object, or by the same kind of object, as the past, we are performing an act quite distinct from the association or reproduction, even though this latter is an essential condition of the occurrence of the inference. We may also *infer* the possibility of other sensations connected with the same object and in that way anticipate "experience" or sensation, say of taste or resistance. The apprehension is of the present quality "experienced." It is a presentation or the act aware of the presentation, while the inference is only of its possibility or probability under the appropriate conditions.

This comparison of apprehension with reproduction and inference indicates two things which are not united in either of the two latter. It indicates that we mean to denominate by apprehension a present act of consciousness in which the object is also present, while reproduction has no object present until after it has acted, when the state becomes some other act of "knowledge" and inference has no present object for its referee but only for its datum or *point de repere*. Apprehension has an object for both its referee and its datum. It is therefore a name for a present rather than an expected or past event in consciousness.

This object of apprehension must be noticed. It is the direct and immediate fact of which consciousness takes cognizance or is aware as present. I may represent it as of three general kinds. This is to say that there are three general classes of objects of which apprehension may be cognizant. There are (*a*) space, (*b*) time, and (*c*) events. Space is that characteristic which we notice especially in visual sensations as a concomitant or indistinguishable quality in connection with color, the expansion, extension or reciprocal exclusion (auseinander) of the points constituting the expanded mass of color. A similar sense of expansion or extension is noticeable in tactual and muscular experiences. But in making this an object of apprehension I do not mean to imply that the process is aware of it necessarily as space or a distinct quality from the sensory datum as a whole with which it is found, but that it is simply aware of a fact that may on further analysis and investigation deserve the name of space as distinguishable from other incidents of "experience." It is simply a quale in the totality called visual sensation in all ordinary "perception." We may call

this object the "form of external intuition" after the manner of Kant if we like, but I prefer to avoid that expression, partly because it is not self-interpreting, and partly because I do not wish to identify the conception of it taken here with Kantian philosophical implications based upon the view represented by that expression, even though they happen to be correct in fact, which is a disputed point. But it is at least the characteristic of all sensations with which it is associated at all and involves no variation of kind as in the color, or tactual element of the sensations. These vary in kind or degree in a way not associated with the space element, and so we get a common conception of the space quale which enables us to speak of it as generic and more essential, as it were, to such "experience." Whether it is subjective or has a meaning for an external "reality" of the thing thus apprehended I do not care. That is a question for later consideration. All that I require of it as an object of apprehension is that it shall be an immediate "percept" of the subject along with what is called sensation, whatever its nature or meaning. Time is a similar quale in both sensation and mentation. In Kantian phrase, it is the form of both internal and external "experience." It is expressed by duration, succession (nacheinander). As an object of apprehension it is like all other objects of it, an ultimate datum of consciousness. By "events" as objects of apprehension I mean what generally passes for phenomena. I avoid this term, however, because I do not wish to complicate present matters with the equivocations of the term "phenomenon," which now denotes "appearances" and again "changes" which may not be "appearances" at all, except in the Platonic sense. Moreover also I do not wish to express the idea of "things" as substances, as external "realities," but only "facts of experience," however we may come to consider them later. I mean to apply the term to both external and internal "events," facts which represent the occurrences supposed to be in an external world and those supposed to represent an internal world. I do not mean to imply that apprehension necessarily distinguishes between an internal and external "reality," but only that the facts or events which may be its objects directly are those which we come to distinguish in that way, if not at first, certainly when "knowledge" has advanced to a complex stage. Nor would I say that apprehension even distinguishes them *as* events. This may require a comparison with something not an event. All that I mean is that there are facts of consciousness whose nature comes to be "known" as events at least and that they seem to be the primary data for the reflective functions of intelligence. These are to be considered the "given" data for systematic ideation.

The purpose of supposing or asserting such a process as apprehension is to have a name for that simple act which gives us a certainty as to the most elementary facts of "knowledge," or the facts of which we are most certain in our convictions. Sensation having been supposed to be a subjective fact in relation to stimulus does not express the idea of decisiveness which is associated with the idea of apprehension. Moreover sensation does not express the notion of being an act which is like attention in its directive or referential meaning, as apprehension does. But however this may be, the exigencies of philosophic thought gave rise to the term which would combine all the assertiveness of judgment and all the immediacy of sensation, while it excluded the synthetic nature of judgment in connection with which illusion and error were found, at least in some of its manifestations. It is noticeable, therefore, that apprehension, as a process of "knowledge," represents an act that gives a certain quantum of certitude at least and has associated with its import the positiveness, positing, or decision that affects the notion of "judgment" wholly apart from the question whether it is synthetic or not. Apprehension, therefore, expresses a simple act of consciousness with an object of which we can be certain, and without regard to any question affecting its complexity as an object, though that object may be only simple as a matter of fact. Apprehension, therefore, shall be treated as the simplest function of consciousness in the determination of certitude as an element of "knowledge." In this, however, I do not mean to say that apprehension is either the first temporally or the only condition of certitude as to facts or "knowledge," but that either the process or its object is the simplest with which an analysis and discussion of complex "knowledge" must begin. A more complete statement of its place and function in the general question will appear in the summarized account of the problem. At present I am content with the definition of the act and of its relation to sensation and mentation.

CHAPTER V.

CONDITIONS OF SYNTHETIC KNOWLEDGE.

In a previous chapter I showed that the term "knowledge" sometimes expressed certitude of conviction and sometimes the unification of "experience." This was indicated for the purpose of calling attention to two distinct problems which passed under that single term. I also pointed out the fact that in solving the problem in any form we had to distinguish between the process by which either result was obtained and the product or result itself. That is to say, "knowledge" is a name for a process as well as a product, the process being named as the means, evidence, or explanation of the way in which the product is obtained. Thus we are in the habit of saying that sensation is the process by which we obtain a "knowledge" of the external world. Where we treat this purely as an affection of the organism, apprehension, "perception," intuition are named as the processes determining a conviction of external "reality." Judgment and reasoning come in as names for processes giving more complex conceptions in "knowledge." But in spite of the fact that analysis of "knowledge" brings us to the consideration of processes, the chief matter of interest is the product after all, as this is the subject of scepticism rather than mental activities. This is apparent in the very heading of this chapter where I have spoken of "synthetic knowledge." The illustrations of what this is will make the fact still more clear. For instance, such conceptions as "universe," "evolution," "Copernican astronomy," "machinery" are not the product of any single function of intelligence, nor of several functions at any one time. How do we obtain these and the truths for which they stand?

In the analysis of the functions covering the whole field of "knowledge" the reader will recall that I recognized but two functions of consciousness as required for the explanation and origin of all our "knowledge." These were Apprehension or Intuition and Cognition or Judgment. I have shown what apprehension supplies and it remains to study cognition and the principles by which it effects its work. Apprehension was concerned with the simple objects of "experience" unsystematized and unrelated, as in the individual states of sensation and mentation with the facts representing their objects. But

we come now to those complex ideas, if I may use that expression, or synthetic conceptions and judgments, which have always excited interest both for the process of their acquisition and for the test of their validity. It is in this field of cognition or synthetic conceptions that illusion, error, and fallacy most easily arise. We discover that convictions, to which we had tenaciously held as self-evident or supposedly irrefutable, are exposed to doubt and even become obsolete. Others we still cling to as necessary for the regulation of conduct, and consequently we seek for some criterion to distinguish between the true and the false, and so to certify our hesitating beliefs. This certification varies between the assignment of the process by which the belief is formed and the cohesiveness of the product formed. For example, we have the conceptions of external "reality" substance, causality, soul, God, immortality, etc., and in the course of time the belief in the existence of all of them is brought into question. When this has been done various devices have been employed to defend the validity of some or all of them. "Intuition," "intuitive principles," "a priori truths," "categories" are terms that have been used or coined for the purpose of certifying certain of these conceptions, such as substance, causality, external "reality," etc. Ontological, cosmological, and teleological proofs have been the means of fortifying the belief in the existence of God, and various resources employed to fortify the belief in a soul and its survival after death. All these comprehensive conceptions are preceded by simpler complex ideas in the life of the individual which are traceable to the same general processes. It will be necessary, therefore, to determine the area of complex conceptions over which the discussion is to extend.

There are two general divisions of conceptions which I shall have to note in the determination of this area. They are first the division into Singular and General concepts, and second that into Concrete and Abstract. A singular term or concept is represented by a group of facts, attributes or properties which are not repeated as such in any other individual. That is, the name for the group applies to no other group, or no other individual. This class of concepts is illustrated by proper names. We might also consider in the same way every individual group of facts or properties in the presentations of apprehension, in case such groups are possible. This class represents the purest form of concrete conceptions. Singular concepts are only concrete. A general concept is one which represents a number of individuals of the same kind to which the term is equally applicable. Thus 'tree,' 'animal,' 'vertebrate' are examples of this class. These terms may

stand for a group of qualities as singular terms do, but if so this group must be of a like kind. The general term takes no account of qualities that are not common to all the individuals composing the class. It may even be limited to the one quality that is common. There is, however, a characteristic of general terms or conceptions which must be noticed. They may be regarded from two points of view. These are called their *intension* and *extension*. Their intension is their qualitative power: their extension is their quantitative power. Their intension denotes the qualities for which they stand: their extension refers to their numerical capacity or the fact that they apply to more than one individual, even any indefinite number of them. In their intension they denote one or more *like* qualities; in their extension they may denote numerical wholes including resemblances and differences. That is to say, in their extension they are taken or conceived concretely, represented in consciousness by the individual wholes which help to constitute the class numerically, while intensively they are thought of in terms of their common properties.

Before anything further is said about general terms it will be necessary to define and illustrate concrete and abstract concepts. A concrete concept is one which represents either a single subject of qualities or an attribute thought of as an attribute, or even a present group of them thought of as such. As said above the best illustration of a concrete term is the Singular concept. It is a *pure* concrete. An abstract concept is one which represents any fact or property conceived as if apart from the subject to which it actually belongs and represented grammatically as itself a subject of qualities. Thus 'sweetness,' 'alacrity,' 'virtue' are abstract concepts. They are also nothing else in comparison with the concrete. That is, they are *pure* abstracts.

It is, however, only in connection with the distinction between Singular and General concepts that the terms concrete and abstract have any importance in the problem of knowledge as I expect to discuss it. It is the fact that General concepts may be described as *mixed* concrete and abstract terms. In their intensive or qualitative import they denote only a part of the real things to which they apply, namely, the common properties and hence may be regarded as abstract. In their extensive or quantitative import they may be described as concrete because they are names for the group of properties constituting the individual wholes in the class. This fact of a mixed character affects the question of the processes involved in their formation. This will appear in its proper place. For the present it suffices to

know that the problem of "knowledge" representing synthetic conceptions begins with the explanation of the formation of Singular and General concepts, and as all possible concepts of the human mind may be included in one or the other or both of these classes this problem also ends with the same results, though it may be in exceedingly complicated forms. I need not take any special account of collective concepts as these may be treated as either singular or general. I am concerned only with the fact of synthesis as the fundamental one after simple apprehension is explained or defined. I intend to assume, what I think is an indisputable fact, that all possible conceptions and beliefs can be reduced to one or the other of these two classes of conceptions, so that whatever process explains them in their simplest form will explain them in their most complicated form.

I shall treat *propositions* as simply more complicated *conceptions*. So far as I can see they are nothing more than syntheses for which we have not adopted single terms to denote their meaning. For example, the concept 'man' is a name for a certain group of qualities, whether intensively or extensively considered, and these qualities are so apparent, analytic in Kant's phrase, that we do not require to indicate them when the term is used. But if I require to speak of any characteristics which are not analytically suggested, say in the proposition, 'man is a laughing animal,' I am obliged to employ a 'judgment' instead of a singular term. If we had a singular term like 'man' for 'laughing animal' we should not require to use the proposition that 'man is a laughing animal,' but simply the single term. Just as I should have to employ some proposition like 'the vertebrate which is a rational being, etc., is a biped, social, religious,' etc., if I did not have the term "man" to denote the group of qualities indicated. This is to say that the same "judgment" is involved in the formation of the syntheses expressed in conceptions as in propositions and the same in propositions as in conceptions. Propositions are only economic devices to prevent the multiplication of language. So far as the derivation of "knowledge" is concerned they have to be treated in precisely the same way as conceptions.

Now how is synthesis possible, to parody Kant's way of putting the question? I am not asking when or how it is valid, but only how it is effected. The question of explanation and validification I propose to keep separate from each other, as is not always done. I am only asking how we effect this synthesis in "knowledge," how do we come to group qualities and individual wholes in the way in which we do it as a fact.

If we look for a moment at apprehension we can understand more clearly what is meant by this question. We found apprehension to represent a kind of immediate and direct "knowledge." In it the subject comes into immediate contact, as it were, with the fact "known." The fact "known" is presented immediately to consciousness, and it is a single fact. It does not represent a group of different properties in the same individual whole. The fact apprehended is a single quality and even this may not be thought of as a quality, though it is this in fact. No attempt is made by apprehension to conceive or interpret the relative import of any fact. It is simply a presented "experience," a conscious fact, and in so far as the synthesis of which I am speaking is concerned, is a single isolated fact, simple in nature and without synthetic elements. Now it happens that, in such conceptions as "Charter Oak," or "tree," there are represented qualities or "percepts" that are either not apprehended, all of them, by the same sense or not apprehended by different senses at the same time, but are nevertheless in some way assigned to the same center of reference, that is have the same referee. The question, therefore, how is synthesis possible, pertains to this result. How do we come to form systems of conceptions which constitute what I have called synthetic "knowledge"? How do we combine, or come to combine the objects of apprehension so that the synthesis represents what we call a concept as distinct from a "percept"?

The general answer which I give to this question is expressed in the process of cognition or judgment. I have adopted these terms to express the generic character of all intellectual processes beyond apprehension. In the adoption of them it will be noticed that I have widened the common import of the term "judgment" to include what is commonly expressed by conception, judgment and reasoning, as indicated heretofore. I use the term cognition as one convenient philologically to suggest the synthetic nature of the intellectual process concerned, and the term judgment to express both the assertory or positing character of the act and the affiliation of the doctrine to be presented with the general tendency of thought in and since Kant.

It is in the function or result of judgment that the question of truth or validity has always been raised. When any assertion is made, the sceptic puts in his query for the ground of the assertion. He asks, "How do we know?" As indicated above the answer to this question has been embodied in various expressions like "intuition," "intuitive principles," etc. If asked, for instance, how we knew that God existed, the answer was that in its last analysis it represented the

application of the "intuitive principle" of causality to the phenomena of nature. If asked how we knew that an external world existed we received some such answer as that it was "intuitively" known, that it was an immediate object of "perception" and not subject to doubt, etc. This way of solving the question gave rise to a system of so-called "intuitive principles" which were treated as the basal assumptions of all intellectual processes of the higher sort. In the Kantian system they received the name of "Categories of judgment." It was the English school that confined itself to phrases like "intuitive truths." What was meant in both schools was that there were certain "laws of thought," ultimate or fundamental assumptions, necessary assumptions, if you like, which lay at the basis of all intellectual synthesis. Unfortunately the assumption of them was applied equally to determine explanation and validification at the same time. It may be that the final analysis will show that this can be done in some instances, but I shall not confuse the two questions. The laws of thought may or may not be necessary, may or may not validate assertion, so far as I am concerned. I shall merely occupy myself with the explanation of synthesis by indicating the processes and the assumptions involved in effecting the synthesis. The tendency to synthesis occurs in the disposition to unify "experience." Now on what principles can we or do we unify "experience"?

The demand for synthesis arises when we discover that facts are not isolated things; when we discover that "phenomena" exist in relations; when we observe that events begin in time and we wish to know why they occur at all; when we wish to know why certain facts are found together instead of separately from each other. We seek the meaning of facts, their interpretation, their indication of something more than themselves. All of this implies unity and synthesis. On what principles does this synthetic action of the subject proceed? What assumptions do we make, whether necessary or contingent, when we thus form judgments unifying or synthetizing "experience"?

The English school answered this question in the general form of "intuitive and necessary truths," which it did not systematically classify. Kant answered it by his system of categories. These were regarded as the principles of judgment, and indicated by him to be the "formal principles" of the same. But whether "formal" or "material" they were the conditions of synthetic intellection or thought.

In order to show how cognition or judgment effects its syntheses it will be necessary to exhibit a table of principles on which it proceeds, and it will be best to examine the Kantian system in order to show

how this table of principles both grows out of that system and how it differs from it.

Quantity, quality, relation and modality were not properly "categories" in the Kantian system, but the names for the various types of them. I need not repeat them here, as I can assume an adequate knowledge of them for my purposes at present. Nor need I repeat the criticisms which have often been made regarding them and the manner in which Kant obtained them. All that I require to remark is the fact that they were drawn from formal logic and used to characterize the various forms of judgment. Now it is noticeable that Kant does not engage in any discussion of the general problem of judgment in the theory of "knowledge," nor does he provide any systematic analysis of his problem which would exhibit the generic function of judgment, though I think it only fair to say that he most probably conceived it as the fundamental characteristic of all "knowledge" beyond sensation (Empfindung and Wahrnemung). His "understanding" (Verstand) probably had no other function. But I think at the same time that he does not make this view as clear as he should have done. But whether this is true or not, it is certain that he began his work with assumptions drawn from the formal logic of his time and complicated it with conceptions of that subject in a way that makes it necessary briefly to review its nature in order to rightly understand the functions which Kant assigned to the categories and to prepare the way for modifying his doctrine while accepting the main contention that synthetic "knowledge" is determined by the action of "categories."

The proper function of logic has not always been clear. It has fluctuated between a wider and a narrower conception. This is especially true since Kant whose example in the Kritik made it more or less convertible with the idea of epistemology and many German writers still treat it as such. Aristotle, of course, conceived it as the organon of "knowledge" generally, but scholastic writers, while they conceived it as the organon of "knowledge," reduced this to what we call *formal* logic and made this convertible with the ratiocinative processes. This was the conception of it at the time of Kant. But though the definition of it was that it concerned the laws of thought it was not always made clear whether the laws of thought, in so far as they determined legitimacy, extended over conception and judgment, or were limited to the ratiocinative process. But when it is noticed that there were no rules for determining the validity of conception and judgment and that the validity of reasoning seemed to be the important

and supreme object of logical science, it becomes apparent that we may treat conceptions and judgments as constitutive materials of the syllogism. This is the way that they have usually been treated, especially in all modern times. The syllogism is an instrument or mechanism which has its elements and these have to be defined and explained in order to make the general subject clear. These elements are conceptions and judgments. The definition and explication of their meaning does not vindicate their validity, but only indicate their function in constituting the conditions under which the syllogism is formed and reasoning exercised. Consequently logic became a science of the validity of the ratiocinative process. As this process was not dependent upon the validity of any of its constituent elements or matter, but only by the acts by which the conclusion or inference was drawn in conformity with certain principles, it was not necessary to raise any questions regarding the functions of conception and judgment in the problem of "knowledge," because the only "knowledge" immediately concerned was the ratiocinative. If then the legitimacy of our reasoning process be the main problem of formal logic, conception and judgment have a very subordinate place in it. The question of their validity or invalidity does not affect the issue of reasoning, whatever may be said about the material truth of the conclusion. This is equivalent to saying that the laws for valid reasoning may be independent of the criteria for the validity of conception and judgment. Now when this is once admttted it will be apparent that we can receive no help from formal logic and its accessories in the more fundamental problem of "knowledge."

The most important circumstance to be noted after the above conclusion has been stated is the fact that the legitimacy of the syllogistic process depends, for its external credentials, upon the *quantity* and *quality* of the propositions constituting it. The rules for determining when it is valid and when not are embodied in the moods and figures, which are based upon the characteristics of quantity and quality in the propositions involved along with the general principle of identity. The conceptions or categories of relation and modality have no place whatever in this question. Owing to this fact they have gradually dropped out of the discussions of formal logic, though they receive cursory mention occasionally because of the inertia of tradition in the treatment of logic. The effect of all this has been to make the subject of logic formal in a far deeper sense than is often supposed, as it totally excludes the material truth of every proposition from its consideration. This is concealed from the general student, and often from the teacher

himself, by the fact that we are constantly taught that logic is a method of proving the truth. This is correct enough under limitations. But it is nothing more than a guide to the correct systematization of propositions, an arrangement for guiding thought in its transitions so that error does not creep into results when it is not in the premises. That is all it can accomplish in its formal function. Ratiocination can be legitimate whether the judgments involved are true or not. Under this conception of the matter the syllogism is not concerned with the truth of either premise or conclusion, but only with the process of transition. The real question of "knowledge" is thus referred to other than ratiocinative processes for its *material characteristics*. Whether the ratiocinative process is of the nature of judgment or not has to be determined by the functions assigned to that process, but with the conception of formal logic as just indicated it is evident that the problem of "knowledge" lies wholly outside its province.

Now whether the fundamental and comprehensive function of "knowledge" shall be assigned to judgment, after discovering that its origin is not ratiocinative, will depend upon two questions: (1) What is "knowledge"? and (2) What range of application shall be given to the term "judgment"?

In his system Kant has not made clear what he meant by "knowledge." We are never informed whether it is certitude of conviction or the unification of experience. It is apparent on the surface that he has the latter conception in mind, though he may tacitly assume that it is this unification of experience that determines the measure of certitude in all cases, as this seems to be the position taken by some writers, and Kant has recognized that consistency is at least a negative criterion of truth. I may agree that both factors, unification and certitude, enter into complete "knowledge," but this does not affect the fact that they are separate factors. Each has its own function or criterion in the problem. But the failure to analyze the issues in a way to recognize the two aspects of the problem causes a concealment of the fundamental question, namely the distinction between the validity of a process and its function in unification. It is certitude that is far more closely related to validity than systematization. Besides this question of certitude was the issue raised by Hume and not the problem of unification at all. The problem of scepticism is that of certitude and not that of unification, and any attempt to answer its question by a process of unification indicates either an ignorance or an evasion of the issue. If it is a problem to show how I come to have certain conceptions the process of unifying experience may be an adequate ex-

planation of the result, but it is not a certification of it. Generally in the history of philosophy, and especially after Descartes and Hume the problem of "knowledge" was to determine what I could be certain of and therefore what I could accept as true, not merely how did I get it or how "complex ideas" originate. The primary question was, 'what can I accept as true'? This was what was meant by the query, 'what can I know'? or 'what can I believe'? no matter how I got it. That this certitude of conviction was implied in the term "knowledge" is apparent in the Kantian system, though it is not distinctly and consciously recognized and separated from the question of unification which seems to be the main purpose of Kant to explain in his conception of "knowledge" as synthesis. In assigning the functions of the categories he showed that it was this synthesis that he had in mind. Consequently the impression left by his system is that "knowledge" applies to the product of judgment and not to other processes. On this view of the case it would be excluded from sensation and "perception," which might not exclude certitude as to the facts or phenomena of "experience." Just at the point where Kant should have defined the limits of extension for the term "knowledge," indicating whether it had any application to the certitude of immediate apprehension or not and thus showing whether he was conscious of the equivocal import of the problem to be solved, he has allowed himself to concentrate so much emphasis upon synthesis as the fundamental conception of "knowledge" that he forgot what the problem of Descartes and Hume was, and conceived it after the manner of Locke as a question of derivation rather than certification.

In addition to defining the sphere of "knowledge," whether limited to the syntheses of judgment or extending to the field of apprehension, he should have made it clear whether he admitted judgment into "perception" or not. If it did not enter into the process of "perception," it would be clear from the wide function which he at least tacitly ascribes to judgment that "knowledge" in Kant's sense was convertible only with the systematization of experience and obtained no certitude which was not imported into it from that experience. If it did constitute a part of the process of "perception," then Kant has not fully explained his doctrine. In fact he simply played fast and loose about this point in a way that makes almost any statement about it possible, so that it is only a matter of individual opinion as to what his real intentions were. It is evident in any case that he intended to superpose judgment upon "experience," whatever that meant, making judgment an additional function of consciousness. It was customary at his time, and

even later, to consider judgment as arising *after* sensation and "perception" have done their work, and after conceptions have been formed, so that in this view of the process it was one unifying experience and not giving content to it, or in any way a part of it. It is, of course, only a matter of definition whether this limitation of its function shall be accepted or not, and if it did not, with this limitation, solve the problem of "knowledge" the process would have to be otherwise named. But everything in the solution depended upon the nature of the sensation and "perception" with which we started and the function of judgment associated with it. If the primary and initial processes of "knowledge" contained valid convictions in regard to objective reality judgment, in being merely superposed upon them, only systematized the disordered data of "experience" and performed only a formal service in the process. But if sensation and "perception" were only subjective states and gave no reality but phenomena, judgment would either have to supply the objective content, the conviction as to a reality not given in the "experience," or it would again only have the purely formal function of unifying phenomena, leaving reality as wholly "unknown" and "unknowable."

Now Kant does not sufficiently analyze his problem and hence does not make it clear to us which of these alternatives he takes. His actual treatment of the subject in various situations and the language employed would lead to the view that sometimes he took one of them and sometimes the other. For he speaks of sensation in a way to imply that it is a purely subjective "phenomenon" with no meaning as "reality," unless this is given by "perception" (Wahrnehung), and then fluctuates between the conception of judgment as being "objective" and as having a purely constructive function. But when we discover that his "objective" is only "universality," or true for other minds as well as the one having the state at the time, we see that, whether with or without adequate reason for belief in the existence of other minds than his own, his conception of "objective" is only an equivocal way of treating the facts as subjective and not necessarily indicating any external fact to mind whatever. Hence with the current and traditional conception of judgment as a functional process applied to given data before him it was natural that Kant's treatment of the categories should assign to them a purely formal function in the synthesis of "experience." Whatever he may have really intended by it in the last analysis of "knowledge," the place that they actually had in formal logic, which Kant himself considered as a purely formal science, inevitably suggested the idea that they did not *give* but *systematized*

reality. In logic quantity, quality, relation and modality were supposed to be "formal" instead of "material" elements of judgment, and as judgment was not assumed to give any content to "knowledge" their "formal" character was doubly certified in their limitations, namely, by the exclusion of judgment from sensation and "perception" and by the traditions of formal logic. It is of course not clear always what Kant meant by making the categories "formal" principles of judgment, as he so frequently employed scholastic terms and distinctions with a change of meaning, but the genius of his system, as expressed in his insistence upon the anthropocentric point of view, his Copernican analogy, justifies us in assuming that he did not mean to give them the "objective" implications which some schools of philosophy assumed. But however this may be, "formal" in usual parlance indicates a conception definite enough in the definition of the elements and conditions of the syllogism. Here it denotes merely a mode of statement which is not at all concerned with the subject matter or truth of a proposition, but which has to be uniformily stated in order that we may know what is meant by assertions. The inference in the syllogism depends on conformity to these formal considerations whether the conclusion as a proposition be true or not. But when it was found that only quantity and quality of propositions were concerned with the validity of reasoning the characteristics known as relation and modality were no longer useful in the problem of logic as the science of reasoning, whatever value they might have in defining "material" elements in judgments or propositions which have to be explained in the problem of "knowledge." In the process of development these categories became a part of the *meaning* of propositions and not their "form." This has especially been the course of development in logic since Kant. They are hardly even mentioned except to reject them as irrelevant to its problems. The consequence is that "formal" obtains a purely relative import. That character which may be "formal" for one object may be "material" for another. This is perhaps admitted by most philosophers to-day, but the significance of the fact for a modification of the problems of "knowledge" is not sufficiently emphasized and made use of in dealing with the Kantian doctrine. It indicates a change in the character of the problem of "knowledge" of which Kant was either not conscious or did not adequately reckon with, if he was aware of it. As long as logic was considered the organon of conviction and so of truth, and as long as it assumed that the means to this end was the ratiocinative process, the question of "form" was not scrutinized too closely. Scholastic philosophers assumed that the

truth was in some way fortified, if it was not originated, by syllogistic reasoning, and little attention was paid to the distinction between validity of process and validity of results, especially as long as relation and modality were admitted elements of the data to which ratiocination was applied. Only when relation and modality were excluded from the "formal" principles of reasoning did the mind become aware that the truth of the conclusion depended upon the initial truth of the premises, while the legitimacy of the logical inference was determined by the "formal" principles of quantity and quality, and the other "categories" had nothing to do with its result. It is evident, therefore, why relation and modality dropped out of consideration in "formal" logic, and henceforth there will be no reason for treating them on the same level or as in the same class, unless we also intend to assume that quantity and quality may have other functions than the "formal" service ascribed to them. But it is certain, whether we class them together as "categories" or not, that they cannot all have the same functions in "formal" logic, in so far as the mere ratiocinative process is concerned. If they were accepted as giving *meaning* or content to the material of the syllogism it would be different, but all that inference requires as its criterion is modes of statement that insure the proper application of the principle of identity, and relation and modality are not necessary to this, unless we are dealing with "material" considerations in the syllogism, which we are not now supposed to do. What Kant ought to have made clear, if he saw it at all, was that the problem of "knowledge" was prior to all processes and conditions of "formal" ratiocination, and hence that his categories should not be drawn from the principles of logic, or that the "categories" of quantity and quality could not have a "formal" import in the theory of "knowledge." Any other conception of the case would require us to retain relation and modality as "formal" principles of reasoning which, in fact, no one will admit. There is then a fundamental difficulty with Kant's conception of the categories, unless we assign the function of determining the *meaning* of propositions, which introduces the idea of "matter" rather than "form" into their interpretation. But if this is what we are to do with them how far have we gotten in the problem of "knowledge"? The function of determining meaning does not determine validity, and it was validity that was required to answer the doubts of scepticism. But what shall be the criterion of validity if the categories only indicate the meaning of propositions and if meaning does not guarantee its own validity?

In order to answer this question we must examine for a moment a

matter which Kant seems not to have noticed, and perhaps could not notice, until the development of formal logic had eliminated the consideration of the categories of relation and modality from its functions. This is the question of *universality* in judgment and that of causality, assumed also to be a category affecting the "formality" of judgments. "Universality" is one of the categories of quality and has served the function of a criterion of truth in the history of speculation with implications quite distinct from the other two categories under the same head. Now Hume had questioned the validity of the idea of causality, though he did not dispute that of universality. Now if the categories determine only the meaning of propositions and scepticism can question the validity of some of them it can be consistent only in extending its doubts to all of them and include universality as well as relation and modality which are frequently enough disputed. Now as universality has often appeared as a criterion of truth and cannot yet, in the eyes of Hume, guarantee causality, it is possible to raise the sceptical question with regard to itself, unless certain reasons may occur to render this impossible. Hence, so far as I can see, there is no common characteristic in Kant's system of categories except the idea of *meaning* or material import, and this neither implied validity nor had formal application in ratiocination. If they perform "formal" functions for judgment in any other field it will be necessary either to extend the operation of judgment into sensation and "perception," where the "material" of "knowledge" is obtained, or to assign the categories no function but that of unifying or systematizing "experience," which is Hume's associative synthesis and Locke's formation of "complex ideas" by the understanding. To give validity besides meaning the categories should have some definite relation or significance *in* "experience" as *interpreting* it, not merely synthetizing it. It is claimed, of course, that Kant meant this, but it is certain that he does not expressly indicate it, while the categories are assigned such a formal function in "knowledge" that we inevitably conceive them as unifying rather than as interpreting phenomena. There is nothing in Kant to show that he meant his categories as modes of interpreting experience, but only as systematizing it, and as his followers insist that he made "experience" merely "phenomenal" there is no ground in his doctrine for the objective world, as he apparently asserted it, but everything is purely subjective, as with the Greek relativists.

There is a further confusion in his treatment of the categories. He includes causality among the categories, but he does not indicate how this can be a "formal" characteristic of logical judgments. He gives

no illustrations of causal judgment and one is puzzled to know what could be given for it, though quantity and quality, and perhaps relation and modality, are easily enough illustrated. If causality is a "formal" principle of judgment it should be illustrated in a type of assertion just as quantity and quality can be illustrated. This simply shows that Kant had not worked out his doctrine of the categories as he should have done. Either they are not "formal" principles of judgment at all or they must show a common feature in their relation to judgment. Now every judgment is based upon the connection of subject and predicate before quantity can be admitted as a characteristic, thus making quantity a purely subordinate "category," if it is to be treated as one at all. The categories, if they have any capacity for classification, should represent the proper variations of the connection between subject and predicate. The characteristic of quantity does not relate to this connection as such but to its *extension*. It does not indicate the meaning of the relation subsisting between subject and predicate but only to the quantity of the subject to which the relation may be applicable. The categories of quality satisfy the principle of classification, but those of modality do not, as they represent the degree of tenacity with which the mind may hold the connection. That is, they have to do with conviction and not with the nature of the matter dealt with in the judgment. It is thus clear why scholastic logic admitted them into its province, as conviction had to be associated with the premises in order to obtain a place in the conclusion. They thus represented "matter" and not "form" in reasoning, and had to be excluded from logic the moment that ratiocination was valued only for its formal functions. Under the categories of relation only one of them can be illustrated in a type of judgments. This is that of substance and attribute, but there is no form of judgment for reciprocity and none for causality which cannot be reduced to that of substance and attribute. Hence Kant should not have chosen logical "forms" for his categories with all the misunderstanding which they were calculated to produce.

Of course, Kant had in mind, not the linguistic and grammatical considerations which logic in its formal functions has to respect, but *the ways in which the mind thinks about its objects*. Laws of thought were his idea of the categories and his "forms" were modes of action and not modes of expression. But while this is the real point of view from which Kant has to be interpreted and represents a proper way to view the fundamental principles of thought, Kant should not have drawn them from formal logic and should have given them

another function than that of the mere unification of phenomena or the formal systematization of "experience," which did not take him beyond Hume's associative synthesis. It may be that nothing else is possible. With that question I have nothing to do at present. It is Kant's inconsistency in the matter that is the subject of remark, since he was pretending to refute the philosophy of Hume. Had he cut himself loose from the limitations of formal logic, as his break with scholastic dogmatism required him to do, he might have seen that it was as much a duty to recast the classification of judgments as it was to classify the categories. But he did not wholly free himself from the shackles of the system which he resented and the consequence was that he remained under the illusion of the formal methods which it was the genius of Hume to have reduced to extremities.

Schopenhauer simplified the matter by reducing the laws of thought to four, and even these he made subdivisions of one, namely, the Law of Sufficient Reason. His four principles were the *ratio essendi*, *ratio fiendi*, *ratio agendi*, and *ratio cognoscendi*. These may be expressed as the *nature*, *cause*, *end*, and *evidence* of facts or reality. I am not at present concerned with either the merits or demerits of this simplification, as it does not affect the problem which I am discussing, namely, that of judgment formally considered, but only the possibility of reducing the number of fundamental principles of "knowledge." When this is once accepted, and especially when we remark the possibility of assuming but one general principle, that of Sufficient Reason, or the tendency to explain "phenomena," we may proceed to examine the forms of judgment with reference to the embodiment of this principle and not with reference to the requirements of formal logic, which has to do, not with the acquisition of "knowledge" as interpretation, but with the transmission of it as conviction. Kant had neglected to remark that the problem of "knowledge," apart from ratiocination and in so far as it was a question of judgment, was concerned with the connection between subject and predicate and not with the principles affecting only the moods and figures of the syllogism. Consequently he did not see that his first duty lay in a new classification of the forms of judgments and then the determination of the categories afterward. In other words, the types of judgment should have been the primary problem of inquiry instead of merely assuming that formal logic determined them, especially as logic had been abandoned as the primary condition of solving the problem of "knowledge."

The criticism of Kant's method of obtaining the categories and the conclusion from it suggests the task which lies before the epistemolo-

gist at the outset of his inquiries. This has been stated to be a classification of judgments. This duty of course, is relative to the functions ascribed to judgment, and these functions in the psychological analysis of the processes of "knowledge" are so general that judgment appears to represent the one type of mental action to which all intellectual synthesis is reducible. What are the specific forms of it that justify the assumption of more than a single category or law of thought? Either there will be only one form of judgment with plural categories simultaneously applicable to interpret its content, if there be more than one such principle at all, or there will be various types of judgment to suit the various modes of interpreting facts of "experience."

There have been various classifications of judgments which might be made to pass under review here if it was my purpose to reject any of them as a condition of adopting the one which recommends itself here. But I shall treat existing classifications of judgment in the same manner as the classifications of the sciences have been treated, namely, as relatively valid and useful. Hence I shall not imply any invidious reflections in suggesting the classification which suits the purpose of the theory of "knowledge" as I wish to discuss it here. This will be especially true when it is remarked that the classification which I propose actually includes the various systems which it might be supposed to supplant or reject. This should be kept in mind.

Whatever their content, therefore, I would reduce all judgments to two types which I shall call *intensive* and *extensive* judgments, the terms "intensive" and "extensive" being adopted partly for the convenience of economic expression and partly as descriptive of certain characteristics found in the judgments so named. By "intensive" judgments I mean to describe those which express the relation of substance and attribute between subject and predicate. For example, "Snow is white," "Sugar is sweet," "Matter is heavy." Nor will such judgments as "John struck James," "The sun heats the earth," "Snow melts with heat," be any exception to this conception of the class. We have only to observe that the idea of "substance" is represented in the subject and that "attributes" may be divided into static and dynamic, as is usual in all the sciences, whether physical or metaphysical, to bring these propositions under the class indicated. All verbal predicates, transitive or intransitive, may be treated in this way for the sake of showing the *formal* mode in which the intensive judgment expresses itself, though there will be certain philosophic reasons for keeping the two modes of thought distinct from each other. This will be taken up later, but in the meantime we have only to recognize

that there are two types of the intensive judgment, the one representing a static relation between subject and predicate and the other a dynamic relation between subject and object or two subjects, using "subject" in its metaphysical sense.

By "extensive" judgments I mean those which express the relation of species and genus between subject and predicate. For example, "Iron is a metal," "Apples are fruit," "Man is a biped." There is but one type of these, and the nature of the relation expressed limits the form of statement to the copulative, and neither the transitive nor intransitive form of verbal expression is possible in them. Formal logic requires us to reduce both forms to the latter type, as may be done, in order to make reasoning universally applicable to judgments. This is rendered possible by the fact that the intensive propositions can be metamorphosed into the extensive by substituting class terms for the predicate. But as I am dealing with problems beyond that of formal logic I do not accept this simplification of the matter as expressing what our problem requires. Indeed were it not that attributes may be divided into static and dynamic I should have to recognize three distinct types of judgment in the problem, which it would be convenient for certain purposes to do. But as the act of mind explaining a static attribute by reference to its subject, substance or ground, is very like that of referring an effect to its cause, an event to its dynamic antecedent, and also as the circumstance that all scientific and philosophic reflection inclines to the reduction of all attributes to the dynamic type, we may as well simplify the case by the divisions adopted and resort to the distinction between static and dynamic attributes when it is necessary to distinguish between a world of immanent reality and a world of transeunt forces, or between a world without and a world with a *commercium* of relations, a monistic and a pluralistic conception of things.

There is a form of "thinking" or conceiving facts which assumes the expression of the intensive judgment but is governed by the principle or category that determines the meaning of the extensive judgment. This form of thinking and representation is very common, so common that we might even say with some plausibility that it describes our general mode of thought, and it might even be seized upon by the phenomenalist to illustrate and prove the purely "phenomenal" and associative nature of all cognition or synthesis. I shall take this up again when I have indicated the categories which regulate synthetic thought and which are not increased or diminished by this peculiar mode of thought. For the classification of judgments in form of ex-

pression and for ultimate reflection the intensive and the extensive remain as the primary types. The form that appears to be an exception and to afford apparent ground for a third class is, in meaning, a sort of converse of the intensive which simply turns it into the extensive. It arises thus, as in the example "Snow is white." It may be claimed that the subject "snow" has no other meaning than the particular "white" which is here said to be its attribute, and that we identify it by the perception of this particular "white." This is to say that we should know nothing of "snow" but for the experience of a given quality of "white." This is true enough, whether we consider that this substance is a synthesis of other qualities at the same time or not. The predicate may be treated as only a way of explaining what we mean by the word, in which case there is a kind of identity between subject and predicate. It is true that I come to know what "snow" is by first perceiving its quality "white," and hence it is the *ratio cognoscendi* of its existence and so a criterion of the conditions under which the word "snow" is applicable, but while this identifies the *representative* conception of subject and predicate in the proposition and explains how I come to know the subject "snow," it does not eliminate the idea of substance when a further question is asked as to the implications of the predicate as a phenomenon or attribute demanding a ground or explanation, so that ultimately the two-fold division of judgments still holds good, except so far as we may desire to distinguish between the causal and the substantive judgment within the intensive class. The intensive judgment is based upon an *ætiological* relation or conception of subject and predicate.

Now it is to be observed that the intensive judgments express in some form the idea of ground or cause as the relation between subject and predicate, whether affirmed or denied. Extensive judgments express some notion of identity or difference between subject and predicate, according to whether the relation is affirmative or negative. The principles which thus give meaning to these judgments may be called in Kant's phrase categories, as representing laws of thought. They indicate the way in which the facts of "experience" are explained or made intelligible. In the intensive judgment the predicate is conceived as a function or attribute of something and as such is referred to the subject as its ground or cause and hence does not appear as self-dependent. In the extensive judgment the predicate is not so referred, but the subject is referred to the predicate as the class to which it belongs or does not belong, and hence the predicate appears as the index of the qualities belonging to the subject, though these are not

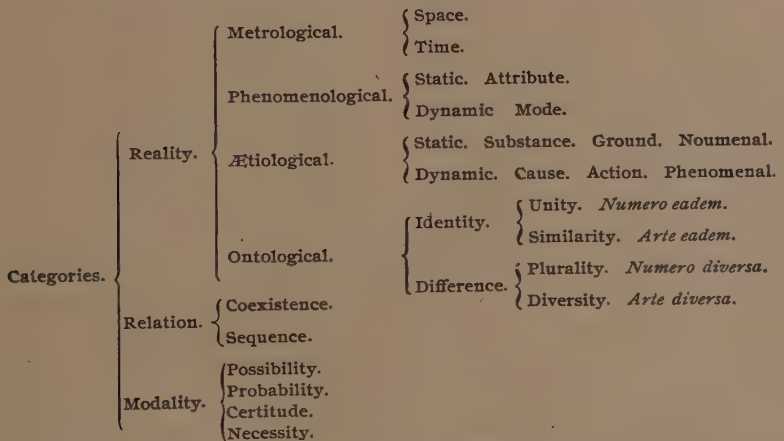
specifically stated. The object of the extensive judgment is to make the subject intelligible in terms of the predicate or to indicate the identity or difference between them. It does not directly explain in terms of causal ideas, but only indicates that, whatever explanation in terms of a cause be considered, it is the same for subject and predicate. It assigns what may be called the *material* or ontological element of a concept by comparison with another already known. The extensive judgment is thus based upon an *ontological* conception of the relation between subject and predicate.

This analysis gives us two fundamental types of categories as regulative of the meaning of all propositions in respect of the relation between subject and predicate. But there is the question of the complexity of meaning involved in the conceptions of subject and predicate and their quantity. Concepts usually imply a synthesis of qualities, so that the problem of "knowledge" is as much concerned with the determination of this synthesis as it is with that of subject and predicate. How does this synthesis come to take place. Besides there is the question of the universality of judgments which involves the question of extending the assertion or denial as well as originally forming it. Certain principles or laws of thought are involved, in this as well as in the primary connection between subject and predicate, and so also in the synthesis of conceptions.

The consequence is that we require other categories for the complete explication of judgment in all its aspects. I shall therefore enumerate what I conceive to be the categories necessary to explain the fundamental process of judgment in the determination of "knowledge." They are *space*, *time*, *substance* and *attribute*, *cause* and *effect*, *unity*, *plurality*, *similarity*, *diversity* and *relation*, including coëxistence and sequence, and possibly one might also include inhesion and nexus, the former for the relation between substance and attribute and the latter for that between cause and effect, although it is possible to reduce them to forms of coëxistence and sequence. There are finally the categories of *modality*, which include possibility, probability, certitude and necessity, certitude being added to the list of Kant and representing much the same tenacity of conviction as necessity, but not the same exclusion of other possibilities. There are situations in which it is not easy, if ever, to distinguish between certitude and necessity, as the latter implies the former, and often relies upon it as a credential. But as there is a feeling of certitude which does not imply necessity, just as there is a feeling of possibility that does not imply any probability we may well recognize a serial order of states of conviction

or degree of tenacity in regard to beliefs in which the later involve and absorb the earlier ones.

Whether it is possible to logically classify the categories will depend upon the question whether any general principles of classification can be obtained. I think this can be done. I have already called attention to the close relation between causal and substantive conceptions, and also to the fact that identity and difference have a sort of common function in determining the relation between subject and predicate in extensive judgments. Both of them express some conception of what may be called reality by which I may mean anything which is distinguishable from non-existence on the one hand and from relation and modality on the other and so indicating the facts in connection with which relation and conviction are possible. I may therefore give a table of classification and explain it afterward.



The principles employed in the classification of the sciences (p. 25) explain the grounds on which some of the above categories are reduced to systematic relations and no further elucidation of these principles is necessary. I have treated them as all forms of Reality in the sense defined. The only thing that remains to be made clear is the treatment of identity and difference, and their relation to unity and plurality. We are all familiar with the usage of the terms "Identity" and "Contradiction" as principles of thought in formal logic, but we do not always stop to consider their equivocal import. Besides in metaphysical and epistemological problems it is better to use the term "Difference" than "Contradiction" which conceals the meaning important for other than logical relations. Hence I have here employed the terms "Identity" and "Difference" to denote two categories of

thought reducible to the general type of ontological or "material" principles of conception. But they each have a double or equivocal import. There is mathematical and generic "identity," and mathematical and generic "difference." Mathematical "identity" is expressed in logic by the judgment "A is A," in which we denote *one and the same thing*. There is no distinction whatever between subject and predicate, not even in number. Hence there is an application of the principle of identity which means numerical identity, numerical unity or individuality, and is represented in thought by sameness in space or what we may call *punctual* identity. Hence the maxim *numero eadem* as expressing its nature. But generic "identity" implies plurality of objects and likeness of kind. It is represented by the extensive judgment "A is B." The judgment affirms the inclusion of A in B as of the same kind though mathematically different. Hence the maxim *arte eadem* as expressing the nature of subject and predicate. The same general principles apply to the import of the category of "difference." The differences between objects may be either mathematical or generic. They may be of the same kind, but individually or numerically distinct, and hence the difference gives rise only to plurality. Possibly the formal statement of this fact would be "A is not A," where we have two A's compared. Again the differences between objects or between aspects of the same object may be of kind and not merely in number. Hence we have qualitative difference to express by the term which often coincides also with the mathematical difference. Hence we may represent it by the judgment "A is not B." The maxims *numero diversa* and *arte diversa* represent respectively the mathematical and the generic differences of comparison. I have taken the term unity to represent mathematical identity, and similarity that of generic identity, while plurality represents that of mathematical differences, and diversity that of generic difference. It is similarity and difference, however, that possess the largest share of the functions involved in the unification of "phenomena" in general, even though the application of the others are the primary condition of determining the data from which we start in the use of the latter. But apart from this the distinctions were necessary, partly for the purpose of recognizing the twofold uses of the terms "identity" and "difference," and partly for the purpose of showing later the separate functions which the distinct meanings have in the problem of "knowledge." In the intensive judgment it is possible to say that we have a combination of the unity and diversity, *numero eadem* and *arte diversa*, in the affirmative judgment, and the combination of plu-

rality and diversity, *numero diversa* and *arte diversa* for the negative judgment.

We are now prepared to study the relation of the categories, thus classified, to the process of "knowledge," in its synthetic forms. But in order to do this it will be necessary to recur to the analysis of the various processes by which we supposed that "knowledge" was acquired. Taking Consciousness as a generic name for all the mental states of which any direct account can be given, we previously divided the functions of "knowledge" into those of apprehension or intuition and cognition or judgment, the latter representing the synthetic agencies in the result. Cognition or judgment was divided into perception, conperception, apperception, infero-apperception or ratiocination, and genero-perception or generalization. It remains to show the relation of the categories to these various processes and what the results are. Some preliminary definition and explanation will be necessary at this point.

I have above indicated that judgments are of the intensive and extensive types. This division, however, defines them in respect of their content or meaning. It does not indicate the processes by which they are formed. Besides it was also remarked that the conceptions, forming the contents or matter of judgment represent the result of cognition and as they may represent a synthesis of qualities or only a simple quality, it is necessary to carry somewhat further the analysis of judgment, in so far as the term stands for a process. The divisions of cognition into the several types of perception, conperception, etc., represent this analysis, as they indicate different applications of the various categories either singly or in combination, in the formation of conceptions and judgments. I have also indicated that the problem of "knowledge" begins with the formation of conceptions which serve as elements of judgments, and that the process of forming conceptions is one of judgment as an action. Hence it is necessary to take account of the fact that conceptions may involve a question as to how the synthesis of qualities can take place for which a term may stand. For example, "tree," "apple," "man" are terms which represent a group of properties and the question is how we came to group them so. The answer to this and various coincidental questions will be found in a presentation of the several cognitive processes.

The general process of cognition is best explained by comparison with intuition or apprehension. This latter process we have shown to be concerned with the primary data of "experience," the simple "facts

of consciousness" or "phenomena," whether conceived as such or not. The moment that any "experience" is conceived as a "phenomenon," quality, property, attribute, event, etc., it is thought of as something related to something else, either as a whole of which it is a part or as a fact dependent upon another. But before any such conception of a fact arises it is only a fact, isolated as it were. I do not mean to say that there is a remembered time in consciousness when we have only apprehended "facts" not related in any way. Nor would I affirm on the other side that they are always conceived as related. Whether cognition is as old as apprehension and inseparable from it I need not decide. I have here distinguished between elements in "knowledge" which may be considered either as abstractions or as independent processes. I merely find that we can abstract the antecedent of a fact and concentrate the mind upon the bare fact and describe it as if alone, an isolated element of consciousness, and this non-synthetized fact I speak of as an intuition or presentation which is a datum for the application of other functions of consciousness than the merely apprehending function. Taking the presentation of a color, a sound, a taste, a pain, or any individual fact regarded as an event in the external world, as something which arrests attention and becomes an object of consciousness as a fact whose explanation is required, if it is conceived as implying more than itself, we have a situation which defines the limits of apprehension and creates the demand for the process which asserts more than the given fact. This process I call Cognition. By it I mean *the application of a category to a fact or "phenomenon,"* the assertion of the implicate which the conception of the fact or "phenomenon" as relative demands. This application of a category is the act of synthesis and will be adequately explained in the various types of cognition. But as a general process it is an *interpreting* act, the act by which the implication or meaning of a fact is determined. As this meaning or implication may be various there will be correspondingly various types of the process.

A further statement of an explanatory character must be made in regard to the terms which have been employed to denominate the several forms of cognition. I intend to give a specific meaning to each of the subdivisions of the general process. This will be in one or two cases a new and narrower import than the current use of the same term has. The others are somewhat new terms and will present no difficulties after the definition. The most important one requiring precautionary remark is "Perception." This is a very common term and has both an indefinite and a philosophically specific use. But even in philosophic

parlance it is variously employed to represent processes which I propose here to carefully distinguish. For instance, we indifferently speak of the "perception of a sound," the "perception of a tree," and the "perception of a truth," etc. The content of the mental act in each of these cases is so different that we have to consider the process as different in so far as difference of content justifies such a distinction. Such an act as a "perception of a sound" I have defined as an apprehension and not as a synthetic act. The "perception of a tree" is certainly synthetic in some sense of the term, and therefore involves either cognition or the combination of either apprehension or cognition and inference. Of this later. In any event the synthesis expressed by the concept "tree" involves more than simple apprehension as I have considered it, and so involves judgment of some kind. The "perception of a truth" is undoubtedly a judgment and involves synthetic elements more abstract than "tree." The term is therefore equivocal, and in a proper analysis of the problem of "knowledge" this ambiguity must be recognized and eliminated. I shall consequently use the term in a much more restricted sense than is usual, except when I put it between quotation marks when I shall recognize its general import. When not so indicated I shall give it the technical meaning in my definition of it which will be limited to as simple a process as the most elementary synthetic act will permit. Conperception had to be coined to express a process more complex than Perception. Apperception I may use in a somewhat restricted sense, though not more so than some writers. The other terms will explain themselves in their definition. But in regard to all of them I must premise the statement that I do not urge the common acceptance of the terms as defined. I adopt them and their technical meaning solely for the purposes of the present discussion and for the proper analysis of the elementary problem of "knowledge." After the analysis of the problem has been recognized as correct, this being helped by the concentration of attention upon technical terms, I do not care what becomes of the technical uses of the terms. They are here meant only to overcome the influence which association and habit have over all of us when using a term instead of the concept represented by its definition and illustration. When that end has been accomplished I may safely rely upon any system of circumlocution to effect the same object, and the ordinary usage can remain as it is, with the understanding that it must be subjected to the proper analysis when dealing with epistemological and metaphysical questions. I would of course prefer to see a term used in its technical sense and remain consistent with its adopted

definition when dealing with philosophic problems, but it may be too much to expect that traditionally fixed conceptions can be easily supplanted by the necessities of an analysis and it may not be required for any purposes but easy and briefly expressed distinctions. The use of a technical or technically defined term always helps to fix the concept which its definition determines, and if that is once effected so as to aid an analysis, we may safely trust to the recognition of the idea to find its own expression where brevity is not a duty or a necessity.

The problem now is to show how intensive and extensive judgments are formed. The formation of concepts involves the same processes, just as the judgments involved in conceptual synthesis may take either the intensive or the extensive form, and as propositions have been explained to be only more complex conceptions which merely economize language, we have before us the simple synthetic problem of the processes involved in Cognition of all types. It will be important to keep in view the fact that I desire to explain the process consistently with any philosophical theories of the schools. It may be necessary to repeat this caution in various places, as the employment of certain terms may imply the assumption of a certain philosophic and metaphysical doctrine of things as a condition of understanding and accepting the analysis and explanation of judgment here adopted. But for the present this brief remark is sufficient.

Perception.

I shall use this term technically to mean the application of the category of causality or ground to the simplest facts of mental experience or the simplest qualities of reality, namely, an apprehension, whether of the internal or external type. In other words perception is the synthesis of an apprehension and what is implied by the ætiological categories. I do not care whether this causality or reality be treated as in its nature "noumenal" or "phenomenal." That is indifferent to the question of the existence of the synthesis and what the implicate is in relation to the facts of apprehension. What I mean by the synthesis is that any given "experience," sensation or mental state, property or event, may be seen and interpreted in the light of an implication of something else than itself, and that the primary and fundamental thing so posited by consciousness is the cause or ground of the fact apprehended, whether it be definite or indefinite. It involves no consideration of time and space elements, but only the conception of meaning in terms of a cause or ground of some kind at least. Whether it is legitimate or not is not now the question, but only that it seems to

be a natural action of the mind in all stages of its development. Thus I have the sensation of a color. I may explain it by referring it to an object as its property. The thing to which it is so referred is its cause or ground. Or I may seek for its cause in some antecedent fact of a "phenomenal" type and thus posit a transcendent fact to make the apparently isolated fact intelligible. But I do not have to go to the external world as a condition of satisfying the ætiological categories. I may refer the sensation to an internal ground. I interpret the sensation as *my own*, as a "phenomenon" of a subject instead of as a property or quality of an object. I do not require to go beyond Solipsism for the use and application of the categories. The epistemological problem is satisfied with a purely subjective point of view and the objective will be only another application of its postulates extending the field of their utility. If I refer a fact or event to myself as its cause or ground and mean nothing more than the cause of that particular fact or event I have satisfied the principle of causality in the case and the question of an external cause or reality will be either supererogatory or an additional problem. As a fact external reality has always been associated in some way or relation with the subjective point of view, but it is not necessary to the utilization of ætiological categories as these may be satisfied by a subjective causal reference. The discrimination between internal and external "reality" may be late. All that I am maintaining here is that apprehension is never satisfied with itself, and that consciousness tries in some way to find the fact or cause to which any given phenomenon or event is related, even if it cannot get beyond the simple self as this cause or ground. But in the doctrine of "perception" epistemology has always referred to the theory of "reality" and this "reality" has meant the existence of an "external" world other than the sensations to be accounted for either as the primary question or as the necessary complement of the subjective "reality." In either or both of these points of view a subject, or object, or subject-object, or object-subject, other than the phenomena or functions of consciousness, was implied, no matter what further investigation might show that "other" to be. Now I am using the term "perception" to indicate this implication, except that I do not use it to imply that this object is known, in the simple act of perception as defined, to have a complexus of attributes, such as is denoted by the term "tree," "orange," or "mind." How the idea of a "tree" or "orange" can be obtained will be a subject for later consideration. Here I limit the term perception, as I intend to use it, to the application of causality or ground to a single and individual datum of appre-

hension. I am supposing that I have nothing more to account for than a sensation of color and nothing more to associate with it than what the idea of a cause or ground calls for. Whether any sensation of sound or taction is related to the *same* cause I am not supposed even to conjecture or imagine as possible. Of this may I remain ignorant. I am to account only for the single phenomenon of color which I conceive as a phenomenon or event which has somehow or other come into existence. That something is implied by it is necessarily involved in the initial conception of it as a "phenomenon," event, or related fact and the only question is as to what we shall call this implicate. We may not name it at the outset. It suffices to recognize that the fact implies this something other than the fact to be rendered intelligible in terms of a cause or ground. The most elementary form of this judgment or application of the ætiological categories is the impersonal judgment. For example, "it rains," "it snows," "it is clearing," "it blows," etc. Here the subject or cause is not specifically named. Only the fact of a cause or ground is indefinitely recognized. In some respects we might say that the impersonal judgment is only a statement of the fact of occurrence and not a stated implication of cause. This is true enough in so far as the explicit recognition of the cause or ground in kind is concerned, but when we examine carefully into the significance of the "it" in the statement, which is not the expletive it, the idea of a cause or ground is there, but is so indefinite that only the fact of occurrence is most apparent. But aside from the question of the real interpretation of the impersonal judgment, all that I wish to contend for at present is that it is the best form of statement for illustrating what is meant by the elementary judgment of perception as its function is here conceived. This distinguishes it very clearly from such statements as "the clouds rain," "the weather is clearing," and "the wind blows," where the subject, real or imaginary, is specifically named and conceived, representing a more mature stage of reflection. The only cause however, which this simple perception is supposed to determine or posit is the single implicate warranted by the conception of the individual apprehension as a related fact, a "phenomenon" or event not explicable by itself.

The legitimacy of this process may be questioned by saying that all of our "knowledge" is limited to "phenomena"; that we "know" naught beyond "phenomena." My reply to this would be that, so far as I am at present concerned, and so far as my definition and conception of "reality" and causality are concerned, we may limit "knowledge" as we please. I do not care whether phenomenalism or nou-

menalism, or both or neither is true. Whether the cause shall be a noumenon different absolutely in kind from all phenomena which it is supposed to explain, or whether it is simply another "phenomenon" like or different from the one in view, does not affect the general conception of the process. I have admitted "empirical" causality or reality in my very classification of the categories. What I am contending for is that the application of a category of causality or ground, whether we think of it as "noumenal" or "phenomenal," whether we think of it as a "thing in itself" or as mere antecedent fact, is the same in its implication when trying to explain a given fact of "experience." The recognition of the individual phenomenon of apprehension is simply the occasion and justification of the search for something other than itself to account for it. We may divide our opinions as to what we shall call this "other than itself," but not in regard to the question whether it is another fact than the one in consideration. One school will insist upon denominating it a "noumenon" or non-phenomenal reality, and mean to assert or imply that it is wholly unlike "phenomena" in its nature. The other will insist upon maintaining that it must be a "phenomenon," whether this be the same or different in kind from that of which it is supposed to be the antecedent or cause. But this "phenomenal" interpretation of the case does not alter the problem. *In both views we transcend the fact to be explained*, whether we choose to call the transcendent thing a "phenomenon" or "noumenon," a "knowable" or "unknowable" reality. The "empiricist" in his reduction of causality to antecedent and in his application of it to any concrete case of present event transcends this event or "phenomenon" when he seeks the cause, condition, or antecedent to explain his present fact quite as much as does the anti-phenomenalist in his resort to non-phenomenal facts or postulates. The "empiricist" may not transcend *all* phenomena. I am not here asserting that he does. Of that in its place. But he does transcend *the* phenomenon in question, and whether the transcendent, or in Professor Ladd's phrase, trans-subjective datum or suppositum, is other than a "phenomenon" of any kind remains still to be decided by further inquiry. He always admits the right and duty to so transcend it for the explanation, as no event explains itself unless science and philosophy mean to commit suicide. On any theory we must seek the cause, ground, or antecedent in something that transcends the fact to be explained or made intelligible. The question here is not what we shall call this transcendent fact, but whether all intellectual synthesis of the explanatory and interpretative sort does not actually so transcend

the given "experience" in its operations aiming at satisfying the mind. Hence I mean to construct the theory of perception so as to consist with either view of our "knowledge" whether it be limited to "phenomena" or extended to "noumena."

Perception, therefore, as I mean to conceive and define it for the purpose of indicating the primary and most elementary act of intellection, simply and only means that an individual apprehension has no interest for consciousness if we try only to consider it by itself. It gets what interest and meaning it has from the mind's seeing it in the light of a cause or ground or antecedent which is supposed in some way to determine its existence or to support it as a dependent fact. All that association can do is to recall some occasion, and with it the coexistent or antecedent fact that was found in its connection, and assume that this circumstance was its cause. The idea of cause or ground, condition or necessary nexus, comes into the case in some way to make the fact intelligible and to prevent the mind from feeling the constraint to treat the fact as spontaneous or inexplicable. Before association arises and after it arises the possibility of viewing the "experience" in isolation from a definite environment shows where the mind looks for explication, especially when there is no past association to suggest the "empirical" synthesis which that act of association indicates, and this source to which it looks is something other than the event itself, leaving it open to decide by any other process we please whether this "other than itself" is "phenomenal" or non-phenomenal. The main point is to conceive the simplest act of judgment as the application of an ætiological category to an individual apprehension, which we can isolate at least by abstraction for the sake of discovering why we do not rest content with the mere present fact of consciousness.

Just when this act first occurs in the life of consciousness it may not be possible to say. I would even admit that it may not in all or any cases often occur in its simple form as defined any more than that simple sensations occur as defined by the philosopher. But if it does occur historically in this way, it is perhaps very early in the life of the individual. Later in the mature consciousness it has to be the result of deliberate experiment with abstraction of concomitant elements, so that it has to be determined for the philosopher by the result of analysis rather than by direct memory of consciousness. We have to find its nature in the same way that we find the nature of sensation which we never remember apart from the complex acts of consciousness that constitute the adult experience. Nor is it necessary to find the act in the early history of the individual in order to maintain that it is prim-

ary and elementary, any more than it is necessary to find a sensation without associates. It is not the historical evolution of consciousness or the gradual superposition of additional elements upon the earliest that is here the problem in order to explain the synthesis, but the question of discovering the elements of a complex process as observed in mature experience. The study of babies is no help in this problem and the whole doctrine of evolution is irrelevant to it. There is no way of telling what a baby or a dog thinks but to find first what the intelligent man thinks, as a condition of making infant and animal experience intelligible. Hence I do not find myself explicitly obliged to find the simple act of perception as defined historically isolated in the life of every individual, in order to justify the appeal to it. I merely find that I have to assume it or actually discover it as the final element in the analysis of the complex data which I find in the mature mind. We proceed here just as we do in the isolation of any function of mind. We find variations of complexity in adult experience that discover the variant in it which by that very fact is proved not to be a necessary element of every consciousness. By abstraction of the various elements of the complex I find that any one of them might take place in isolation which I could call a simple perception. Thus suppose I see a color and have a certain taste at the same time and think of an orange, and again see a color and feel a certain tactile sensation and think again of an orange, or again have a certain taste and a certain tactile sensation at the same time and think of an orange. I discover in the case that the synthesis of any two of the experiences is not necessary. Their connection with each other is contingent, and the order of my experience shows clearly enough that I cannot treat any one of them as the cause of the other. Consequently I consider them individual elements of a whole any one of which might occur in isolation, and in fact I can test this possibility by actual experiment when I please, and the idea of cause or ground appears in consciousness as inevitably as if their synthesis were present. All that I have to do in the presence of the complex data of any given consciousness, which I recognize as complex, is to ask what I would think if only one of the qualities were presented to the mind instead of the totality and I should find myself predicating a cause or ground quite as readily and confidently as I do the singleness or unity of this cause or ground for the synthesis of qualities. It is probable, therefore, that perception as I have defined it here is an actual and early experience in the mind's life and only lacks the maturity of self-consciousness and reflection to remember it as a fact. Aside from the question whether it is chrono-

logically an elementary act, it is both logically and psychologically the most elementary act of judgment inasmuch as it contains in the synthesis fewer of the elements that constitute mature consciousness and that do and must appear as variants in it. The illustration above given shows this to be a fact. The simplest act, therefore, of judgment is the reference of any fact or event to a cause, and this I have decided to call perception. We may not at first separate the cause or ground from the effect or attribute in space or time. We may do nothing more than think that there is some reason for the occurrence of the fact or "phenomenon." In the earliest stages of consciousness the experience may not assume any division of aspects or parts. But what occurs in that stage is not a matter which any one can historically determine. All that we can say is that, if at any time in the history of the mind no distinction of cause and effect, of ground and attribute takes place, the fact of experience can neither be a "phenomenon" nor anything else of a relative sort to consciousness. We would not think of it as a "color," "sound," "taste," or "odor," as these facts are understood in mature consciousness where they are conceived as events or changes involving an implied something else connected with them, even if we can neither name it nor conceive it in terms similar to the facts presented. We could only take them as inexplicable facts having no implications and no characteristics suggesting relations of any kind. It is the moment when I conceive a fact as an event or phenomenon that the causal ground is implied. The perception which I am defining and illustrating is the judgment that arises when the mind decides to view any or all events as such, as something beginning in time or place and not of themselves explicable as having an independent existence. We may not definitely think or name the cause or ground. We may not say "substance," or "matter," or "soul," or other general reality, and much less "brain," or "tree," or "flower." The judgment need be nothing more than "something." This indefinite implicate suffices to exemplify the conception of elementary synthesis or explanation, and later multiplied "experiences" will induce other elements into the more complex syntheses. Later "experiences" will also differentiate this "something" into the particular causes or grounds of ordinary language and thought. Finally by comparison and the application of other categories the various individual implicates of simple perception will become systematically classified, so that "substance" will stand at their head and singular terms at the foot of the series. The first step, however is the generic judgment of a reality other than the fact to be accounted for and this

judgment is the primary one, not involving any space or time assumptions whatever as conditions of either its meaning or formation. Space and time may be characteristics of each individual apprehension, but in perception as here conceived this space and time are not conditions of the judgment which is formed on the occasion of the "experience."

The object of perception, percept as I shall call it to distinguish it from concept, is not a complexus of attributes, such as the concept "tree" or "horse." If any such "reality" actually existed alone it would be Herbart's Real, a thing with but one attribute or property, or an atom like that of some physicists who insist that a true atom can have but one quality, and that if a number of attributes are discovered to belong to the same subject the fact is evidence that we have not found the true atom, and that the supposed instance is a compound such as we know water, nitric acid, etc., to be, and so is resolvable into simpler elements which might prove to be the true atoms. Whether such things exist or not I am not concerned to affirm or deny. I am only choosing an actual mode of thought to illustrate the limits of the process which I have defined as perception and which, if no other process of "knowledge" were possible, would never give us anything but this simple unanalyzable "reality" for an object. Whatever the actual nature of real objects, perception is the evidence of but a ground or cause for a single apprehension unassociated with another, and if we ever discover that the same cause or ground also has other properties or functions than that which excites a given sensation we have to determine the fact by other conditions than those which I have been considering.

Conperception.

I have distinguished percepts from concepts, the former representing the object of a single apprehension, an object that may be nothing more than the idea of an indefinite cause or ground, and which but for other considerations might result in the conception of as many distinct worlds or realities as there are avenues of apprehension. Concept stands for either a synthesis of qualities or a synthesis of objects, the former, as we have seen above, being called a singular, and the latter a general concept. But the point here to be noticed is the fact that concept, simply as a term, means synthesis of some kind which unifies the application of the categories and represents the first step in the process of unifying the world or cosmos. It is the process of conperception that begins this movement and lies at the basis of the formation of *singular* concepts. General concepts are the result of later

and additional processes, the order of development being, in so far as simplicity and complexity are concerned, percepts, singular concepts, and general concepts. Of this again.

Perception is a simple process. Conperception, however, involves more elements and conditions than perception. Its first characteristic is that it must represent the application of causality or ground to two or more, or any conceivable number of *simultaneous and identico-local* apprehensions. That is, it must represent two or more simultaneous perceptions. But it is more than the mere application of an ætiological category, which might give as many realities separate from each other as there are perceptions involved. It is the additional elements that determine its value. Hence as the second important element and condition conperception includes *space and time relations*. That is, space and time determine the form of the result which the judgment effects. If the apprehensions are incited from the same point in space and occur at the same time for both or more "experiences," the judgment, under the category of causality or ground, represents this object as the same for all of them, namely, as a *single* subject or thing, *numero eadem*, whatever else it may be. The object will thus be complex in respect of its qualities or functional activities, *numero diversa*, but simple in respect to its space and time relations, *numero eadem*. If the two or more different apprehensions occur in different points of space, at the same time, or in different moments of time at the same point of space, the judgment of causality, *ceteris paribus*, will represent as many different objects or subjects of attributes, or things as the source of sensations, objects that are different in kind, *numero diversa*, whatever else they may be. It will be noticed that the ontological categories are here involved in the product of conperception, but only in so far as unity and plurality are concerned. Similarity and diversity of kind are not concerned. I need not more than refer to this fact as an indication of having remarked it. The most important point to note now is the place assigned to space and time as factors affecting the form which the application of causality or ground takes. It refers the ground of the qualities represented in consciousness to single or plural objects according to the conditions indicated above. In the first and properly conperceptive act, when the space and time are the same for the perceptions, we have the same subject or cause for the two or more attributes. We have a conpercept, as we may call it, in distinction from percept, and hence a singular concept like "Plato," "Bucephalus," "Charter Oak," etc. In the second form, when the space and time relations involve the plurality of one of them, we have a

plurality of objects or things, whether as percepts or conpercepts, the one or the other being determined by the simplicity or degree of complexity involved in the mental acts at the time. If no two apprehensions occur at the same point of space and in the same moment of time, that is, simultaneously, there will be no conperception at all, but only plural perceptions not involving any conception of unity in cause or ground. If two or more apprehensions occur under conperceptive conditions for two of the senses and two or more under conperceptive conditions for the other senses there will be two distinct conperceptions, representing different unities for cause or ground and hence a plurality of objects, but with each of them representing the synthetic act of conperception. Let me illustrate the process and results.

Let me suppose that I have an orange on my table. For the purposes of my illustration, however, I am not assuming that the object is yet known to be an orange or even to be known as anything. I merely assume a case of complex attributes and that I do not yet know the fact. I first have the sensation or apprehension of color. This will give rise to a perception and nothing more. Suppose also that I touch the object without seeing it or having the sensation of color. I would again have nothing but a perception when interpreting the meaning of the "experience." But suppose that I have simultaneously the appropriate sensations of color and touch and they represent the same point or space locality, why should I refer the cause or ground of the events to the *same* object? Why not suppose that I am seeing one thing and touching another, seeing a house across the street and touching the orange before me? The answer to this question is simple. If I have reason to believe, or actually see that the visual apprehension has its causal source at the same point of space as the tactual, both being simultaneous by hypothesis, I simply use the principle of mathematical identity or unity, in other words act according to the Law of Parsimony, in my causal judgment and refer the plural qualities to the same subject or object. The object before me becomes a synthesis of properties, a single whole and with frequent "experience" means this, so that on the apprehension of one of them I may anticipate the possible apprehension of another. It is in this way that I ultimately derive the basis for all conceptions of individual wholes or syntheses of qualities. This is the judgment of conperception. On the other hand, if I have a sensation of color and at the same time one of touch, when I have reason to believe that the two do not originate from the same point of space, I must refer them to different realities. *Ceteris paribus*, it will be the same if the apprehension issue from the same point of

space but occur at different moments of time without any evidence that the cause of the first sensation has remained at the same point of space in the meantime. The real conperceptive synthesis can take place only in the unity of time and space with the application of the ætiological categories, and we begin by this process the unification of "experience" and rely upon it in all later "knowledge" to test the accuracy and legitimacy of the anticipative judgments of infero-apperception and genero-perception.

It is not important to discuss the origin or nature of space apprehension in this problem, as I am not concerned with any theory of either nativism or empiricism in the matter of genesis, or of subjectivity or objectivity in nature. Whatever its genesis, or nature, its use in conperception is the same. It is probable that visual space, however derived, is the basis for the assumption of identity and difference in the conditions affecting conperception. For instance, in the illustration of the orange, I can ascertain whether the tactual sensation originates from the same point in space as the visual by noting that the point of fixation for seeing the color coincides with the point of tactual contact as visually determined in the optical field. Otherwise I should either have no evidence of spatial coincidence or have to resort to other means for determining it. The sense of vision suffices, with the adjustment of touch to its field, to determine the coincidence, and that is all that is required to have the process of synthesis effected at any time, whether the ideas of space and time be "a priori" or "empirical."

It will be interesting to remark at this stage of the problem that we have data for some representation of consequences. Perception, as already remarked, does not involve any conception of a unified universe. It is quite consistent with a chaos. It does not require for its action or satisfaction the existence of any relations other than a cause, nor any reciprocity or interaction between various causes or objects whose existence it assumes or postulates, no matter how such things may be actually related. It simply goes beyond the individual "phenomena" of apprehension for their causes or grounds and does not determine whether they are interrelated or not, or whether there is any common basis for a synthesis of different qualities. So far as perception is concerned the world may not be an ordered one at all, but only a chaos. But conperception begins to suggest some sort of unity, even if it is only limited to a synthesis of qualities in a single subject and leaves all such synthetic objects, if they are plural, as unrelated as perception might leave them. When it gives a unity of reality for a multiple of

qualities it simplifies, to that extent, the possibilities of the world of "knowledge." It is therefore the first step in the unification of "knowledge" which has to be carried further by additional processes to complete the work.

Apperception.

What I have called apperception introduces still greater complications into the synthesis of "knowledge," in that it is superposed upon the two previous processes, which are at the basis of intensive judgments, as apperception is at the basis of extensive judgments. The term is not new, nor is the import which I give to it wholly new. It has not had the same meaning, however, in all systems of philosophy. It had one meaning in Kant, another in Leibnitz, and still another in Wundt and others. Without taking the trouble to decide whether any or all of them are correct, or to decide whether the use of it in the present work is identical with any of them, I shall simply define it as having to do with the assimilation and differentiation of "experience," or the comprehension of specific relations of likeness and differences, if relations these can be called. As here conceived it always involves comparison and is the main step in what is usually conceived to be intelligibility. But I shall use the term so as to include in this general description of its significance a more specific recognition of the principle which enables it to have the function which I assign to it as a mental act, namely, that it involves the application of a category and is a form of judgment. This category is what I have defined as the ontological principle, the use of the ideas of identity or difference to determine the "nature" of things. A peculiar characteristic of it is that it may be applied without any accompaniment of perception and conperception, or ætiological principles, or it may be superposed upon the results of those processes and thus be subordinate to them in the determination of the total meaning of things. Of this again.

I have said that the fundamental characteristic of apperception is that it involves comparison. There must be at least two objects of consciousness that its action may be applied. These objects may be mere "phenomenal experiences," unreferred apprehensions, if we like to limit "knowledge" to such facts, or they may be percepts and conpercepts, if we wish to include such within the possibilities of "knowledge" conceived as more than "phenomenal" syntheses. It should be remembered, however, that I have endeavored to interpret perception and conperception in a way that does not absolutely require us to transcend *all* "phenomena" in our cognitions, though the language

employed is intended also to be consistent with such transcendency in the application of ætiological categories. But we do not require to consider the possibly double import of ontological methods as defined, as there is no necessity for anything more than a comparison and distinction of "phenomena" to satisfy the use of an ontological principle. Consequently I may define apperception consistently with any theory of the ultimate nature of "knowledge" and so regard it as the application of the categories of identity and difference to facts, whether "noumenal" or "phenomenal," for the determination of their "nature" in terms of their likenesses and differences. As already remarked it constitutes the nature of extensive judgments which illustrate its action, and first represents its functions in the formation of *general* concepts. Memory and association may be connected with the process in supplying data for the application of the categories, but these are not absolutely necessary. All that they do is to enable the mind to establish some sort of continuity or discontinuity with the past, while the comparison involving identity or difference between objects of consciousness may be effected entirely within the limits of the present contents of consciousness, so that memory and association only increase the range of "phenomena" to which its categories are applicable.

It is not the fact that two or more objects are before consciousness that constitutes an act of apperception, but the fact that they are observed to be two or more and their similarity or difference remarked. The apperception does not take place until the plurality and similarity or diversity are observed. The process can apply to a single object of consciousness only when a diversity of qualities is observed in connection with the conperception of them in the same subject. In all other cases the category of plurality is present and individual objects are distinguished at least mathematically and may be either identified or distinguished generically. This is probably self-evident from the analysis made. But it should be remarked for the sake of completeness of statement. The principles which determine plurality materially are time and space which I have recognized as the principles of both continuity and individuation. Sameness of time and space are the determinants of mathematical identity or absolute unity. Differences of time and space are the determinants of plurality or separate individualities, that is, mathematically distinct at least, and usually separate in all senses affecting independence of existence and center of reference. Thus two objects of consciousness may be so absolutely alike as to be indistinguishable in all but their individuality of space or time existence, that is, so much alike that, if not seen simultaneously they

might be assumed to be one and the same thing. But the mere fact of differences of time or space is sufficient to determine the plurality which makes comparison and distinction as individual wholes possible, provided that the conditions assure us of the plurality in cases where the objects are not simultaneously before consciousness. The first act will be the observation of similarity or difference between plural objects. The next will be the act of determining the genus and species in the case, and finally when a species or genus has been formed the apperceptions will take the form of extensive judgments where similarity will determine the affirmative and diversity the negative judgments.

The importance of the process, however, is, as has been briefly indicated, that we may or may not accept the ætiological categories in the noumenal sense of transphenomenal reality when considering the act of apperception. We may be satisfied with "phenomenal" facts and their similarity and diversity, and so treat the problem of "knowledge" as solved, for all practical purposes at least, when facts have been systematized and the uniformities of events observed. This is to say that the ontological categories can be applied to classify facts without causally or ætiologically explaining them, and can serve as the principle of classification and systematization where things are not wholly chaotic or irreducible to an order of likeness in kind. Universal differences would leave us without any use for the principle of identity, while the existing system of facts offers data for what are called similarity and difference which are the ontological categories.

Though we may actually apply the ontological categories to phenomena without using the ætiological a little observation will show that interpretation and explanation are not complete until the latter are applied. There are two facts which indicate this. Firstly, all that the principles of identity and difference can accomplish is the reduction to classes or exclusion from them. Classification only indicates that a given fact belongs to a genus already known. When a new fact comes before consciousness the mind may not at first know what to do with it, and after investigation finds that it belongs to a known genus. This is the affirmation of its inclusion in that genus, and hence the affirmative judgment of extension. If excluded the judgment is negative. The fact is supposed to be made intelligible by thus classifying it, less so in the negative than in the affirmative judgment, as its reduction to the known remains still to be affected. But we are supposed to "know" a thing when we can classify it. The fact is, however, that we do not "know" it in any sense that it is fully explained when it is thus classi-

fied, but we only discover that it belongs to the class of supposedly "known" or explained facts. This means that the principle of identity only discovers that a new fact has the *same* explanation as one previously "known," and not that the fact is ultimately explained. Secondly, extensive judgments, though they may classify facts without special reference to their implications, nevertheless do not release the mind from the habit or necessity of thinking of them as related ætiologically in some way. If in forming such judgments, we assume that the facts are "phenomena," events, attributes, or properties, we have a conception of them which postulates with it the idea of cause or ground. Hence, whether the terms of such judgments are the names of events or qualities, or of substantive realities, the idea of ætiological principles is subsumed in the case. This is quite apparent even in the extensive judgment when composed of substantive terms. For example, "Men are vertebrates," "Horses are animals," "Stones are matter," etc. Here we have concepts and judgment which are easily reducible to the intensive form to express practically the same facts as the extensive. "Men," "vertebrates," "horses," etc., are conceived as subjects of attributes, the cause or grounds of a given group of qualities, so that the ætiological postulates are implicated in even the extensive judgments, and serve as the ultimate means of making facts "intelligible." They are the point where explanation stops. All that apperception does is to unify explanation, not to produce it. If we do not "understand" the predicate of an extensive judgment the subject will not be "understood." The value of the judgment is that it reduces the new to the familiar, to the presumably "intelligible," to what is already "known," and hence serves especially the important object of the communication of "knowledge," not the primary determination of it in its explanatory aspects. The ætiological categories take the precedence in this function. The ontological principles enable us to assign a simpler order of things than the ætiological. They give evidence of a unified system of facts in terms of similarity and diversity as well as unity and plurality, and so reduce the conditions of a chaos to a minimum.

Ratiocination.

Ratiocination is the general process of inference. I intend that it shall comprehend the fields of both induction and deduction. This fact explains the scope and range of the term as employed, and as I do not in any way limit or extend the accepted usage of the term further definition of it is not imperative. What the process is, therefore, is

sufficiently well known not to require definition and explanation or illustration at length. The important fact for consideration here is the reason for classifying the process under the general head of judgment or cognition. It has been usual to treat the process as if it were an unique one and different in nature from that of judgment. This may not always or ever be intentional, but the manner of treatment as well as the material involved is calculated at least to suggest the general difference between judgment and reasoning. But I think it simplifies the problem of "knowledge" to conceive ratiocination as a form of judgment. The difference between them is apparent in the relative complexities of the syllogism, but it is only apparent. If we simply remark the fact that the conclusion of the syllogism is always a judgment, formed from the major and minor terms, we certainly discover that the result is a judgment in matter and we may well ask whether the process is anything more. Now if we further observe that the middle term represents an application of the principle of identity or difference and that the mental act which apprehends the relation involved in the connection between the major and minor terms on the basis of the middle term is an apperception, we can readily see that the whole illative process is a judgment in its essential characteristics, and the distinction between it and ratiocination is in the equivocal import of the terms, now used to denote a process and again the subject matter to which it is applied. Ratiocination is only the well known act in more complicated conditions. It has for its matter propositions instead of mere concepts, though we might well call propositions unnamed concepts and thus indicate another evidence that the reasoning process is only a judgment or cognition. The reason that it has seemed to be different from judgment is that we have gotten into the habit of conceiving and defining it by the character of its subject matter rather than the psychological act by which the conclusion is obtained, and as the problem of "knowledge" is at present discussed we require to think of processes instead of subject matter.

Though ratiocination is here conceived as apperception it is important to remark that it has a relation to time and space which apperception does not have. Apperception compares the terms of present syntheses or the terms of the past and present. Memory is necessary for the apperception of the present in reference to the past: it is not necessary for the apperceptive synthesis of the present. But reasoning may include judgment as to the future as well as the past. It is therefore or may be prospective in its conceptual synthesis. Mnemonic apperception is retrospective, ratiocinative apperception may be pros-

pective, possibly must be. It applies to data not actually present to consciousness, although founded upon the present data.

Generalization.

What I have called genero-perception or generalization is simply the application of judgment, under ontological categories, to the time and space relations of present cognitions, that is perception, conperceptions and apperceptions. It will not require elaborate explanation until we come to testing the validity of "knowledge." I remark it here only because it may not be apparent in the definition of ratiocination which may be either prospective or retrospective. It is only because ratiocination may not explicitly generalize its conclusion that the application of the judgment so formed to all time and space is concealed. What generalization accomplishes is the explicit recognition of *universality* in judgment, a characteristic which is determined by the use of the principle of identity or difference, in fact is but an embodiment of it. Present mental states are all that are required for perception, conperception, and apperception and their products need not represent more than the present facts, even though it is possible to bring past "experience" into relations in which these processes may be applied. What I did in the treatment of them as processes was to use the least number of complications in illustrations of their functions and so to limit the elementary factors to the fewest possible, allowing the admission of other matter as the wider conditions of "knowledge" required. Hence it has been necessary to distinguish the special act of universalizing a judgment as an additional act to that of simply forming a present synthesis. I would recognize "universality" as a category were it not that it is nothing more than a special application of the ontological principles as defined.

Objections and Explanations.

The first objection which presents itself to this analysis of the elementary synthetic processes in "knowledge" is that there are no such simple processes in normal adult experience as perception and conperception, as I have defined and applied them. I would be told, by some at least, that the actual mode of acquiring "knowledge" is either quite different from what I have indicated or that it is much more complex. My reply to this objection would be that I am not pretending to assert that all my mental habits and acts represent these functions in their simplicity in normal experience. I quite fully agree that my normal mental action in the majority of my experiences may

represent very much more complex conditions than are found in the individual acts defined. But the critic must remember that I may ask the question on this admission, whether these more complex processes give any "*knowledge*." It is one thing to use the term "knowledge" to represent the acquisition of "ideas," suppositions, possible objects of experience, and another to obtain facts with a certitude and intelligibility that are usually supposed to be implied in "knowledge." What our usual epistemologist forgets is that "knowledge" is an extremely equivocal term and that in the looser parlance of philosophic discussion it stands for the acquisition of ideas, not their certitude and legitimacy or their proof. I am not just now discussing how I get "ideas," nor what the mental processes are by which I form conjectures which have to be verified, but after having dealt with the question of origin I am trying now to explain the elementary acts by which my certain and unified truths are obtained in the last analysis when any sceptical question is raised as to their legitimacy. The whole problem is first to determine what you shall mean by "knowledge," and then gauge your psychological analysis to suit that definition. I agree readily enough that if "knowledge" means any thought or idea that happens to get into my head, there are some far more complicated processes involved than those which I have indicated as elementary and fundamental. Memory and association, conjecture, inductive inference and deductive reasoning, whether valid or not, often combine in my mature experience in suggesting what my mind entertains, but we may well ask whether all this is "knowledge." It is such if "knowledge" means only this product. But in all rational philosophical discussion "knowledge" must have either a more definite meaning or a recognition of the *separate* problems implied in the general and abstract conception of the term as it is too often used in philosophy, if there is to be any sane investigation of its issues at all. If, for instance, I assume that "knowledge" implies certitude in regard to the object matter of consciousness, I must admit that the majority of my mental processes, which are either inductive inferences or associated with these, never give it to me at all. But if "knowledge" is only "ideas," "possibilities of experience," anything might give it to me, association, unverified inference, imagination, or even dreams. But I am not concerned with any such conception of "knowledge." These are processes which require verification and on that account take a subordinate place to those which we are in the habit of regarding as more elementary and more trustworthy. Hence when we wish to find what it is in the complex processes of normal experience that de-

termines the certification and unification demanded in the term "knowledge," we simply eliminate from consideration the inferential and associational factors and take those which are uneliminable and which characterize the constitutional nature of consciousness as a source of any certitude at all, and regard them as the real agencies in the result. I cannot easily pick out a perception or conperception in ordinary experience without finding other processes associated or implicated in them, so that the total exercise of functions in normal life may contain more than the analysis which I have given would seem to indicate. But this complexity does not exclude the presence of these functions as defined, and when the whole process has been analyzed into its elements we shall find all of them there, and the only question will be as to which of them delivers and guarantees "knowledge," this depending on the original definition of our problem.

The whole actual process of "knowledge" may be illustrated in detail. An object is before me. All that I am immediately aware of is a certain yellow color. If it is the first time that I have seen any object at all and I have only the apprehension of a color the only thing that is possible for judgment is expressed in the limited meaning which I have given the term perception. But by the time that the period of reflection and self-consciousness has arrived so much has already been done in the way of maturing the combination of a number of processes that it may be impossible for me to wholly isolate such a simple process for my imagination. Certainly in mature experience I am not likely to escape the influence of memory and association in the event of having a sensation of color as imagined. Hence in such an illustration at a time when the process has any intelligibility at all the apprehension represents an occasion which suggests something besides a cause or ground of the color sensation. This, however, depends wholly upon the condition that I have in the past had some apprehension besides that of vision or color in connection with color. Unless this be so anything whatever might be suggested by the present experience. But the supposition that any other sensation has been associated with the present one in the past is an admission of a conperceptive synthesis which is here supposed to be the subject of scepticism. But it is the only condition that any single apprehension afterward shall suggest the possible association of another quality than the present one apprehended. However, when the apprehension of the yellow color does take place alone, after some conperceptive synthesis in the past, the process instigated by memory and association is an anticipative one. It is an inference that some other quality is present in the

object though not at the time an object of immediate present apprehension. The yellow color may suggest and I may infer that the object has a certain taste and a certain internal structure with which past experience is familiar. The combination of these qualities in the same object is what I have in the past considered as constituting, say, an "orange." Instead of depending upon visual experience in the case to instigate the suggestion it may be taste to start with and I infer the color. Hence in actual experience in adult and mature life what I find is a large dependence upon inference and association in connection with more or less isolated apprehensions and not a perpetual conperceptive synthesis of the qualities which are the object of consciousness at the time. That is to say, in normal life I do not all the time find either an isolated apprehension, an isolated perception, a perfect and complete conperception, all in the order in which the analysis above given presents them, but I find a process which can be more aptly defined and described as one of *infero-apprehension*, a combination of apprehension and inference. The stream of consciousness is scarcely anything else. Inference, and inductive inference at that, is by far the most frequent condition of my thought at any moment of the reflective or unreflective mental life. But when we come to test whether this inferential act is valid or not we have to test its accuracy by the appropriate "experience" or apprehension. If on the apprehension of the particular yellow color I infer the taste and internal structure which I have in the past associated with that particular color I can verify it only by opening the object and tasting it. But I cannot verify this without a conperceptive synthesis. I must be convinced that the taste and internal structure belong to the same object as the color, and the condition of this result is the unity of time and space as above described. If this condition is not satisfied I have no evidence whatever that all the qualities belong to the same object. Hence some degree of conperception is absolutely necessary to any synthesis at all in "experience." It must take place some time in order to make the inference to it at any time possible and rational. The synthesis may not always be the same. Now color and taste may be associated, and again color and tactual qualities, and still again tactual and savory qualities, or again all three of them. When once the conviction has been formed by various conperceptive syntheses that any number of qualities are associated in the object I can infer all of them on the occasion of a single apprehension. This then is the usual process of "knowledge." It shows infero-apprehension as the normal function of the stream of consciousness. But in spite of all, the conperceptive process at some

past time is absolutely necessary to the production of this infero-apprehension and as necessary to its verification in the future. Now if conperception be thus justified as an elementary condition of "knowledge," which is defined as synthetic certitude, it is only a question of further analysis to determine whether there is any such process as simple perception in the definition of it adopted. Now as conperception assumes, postulates, cognizes or implicates the *same* cause or ground for all the qualities simultaneously apprehended, there is no escape from the supposition that a single apprehension demands the same categorical explanation. "Cause" or "ground" is not another *quality*. Both perception and conperception are on the same plain and are to be explained, not one by the other, but both by the same other than themselves. Hence perception is but a name for the explanatory judgment of the mind on the occasion of a single apprehension and hence for one of the double functions involved in an infero-apprehension, which has the ratiocinative act of expectation or anticipation of "experience" and the explanatory function of reference to cause or ground, as well as a retrospective function of memory and association. But the perception is there as an element of the totality and must be regarded as the simplest form of the cognitive consciousness in the application of a category. This has all to be determined by analysis and not by an actual memory of the original "experiences" with which "knowledge" began. The description of the infant consciousness cannot be made from memory and whether in self or others has to be determined by the analysis of the adult consciousness.

Accepting, therefore, the supposition that analysis is a legitimate method for determining the fundamental and elementary processes of "knowledge" I shall merely call attention to the motive which has governed it. It was that I wished to show first that judgment was the one process to which all higher mental action of the intellectual type is reducible and secondly that this involves the application of a category constituting the act synthetic. Assuming, then, that judgment represents the one general type of mental action beyond the sensory, mnemonic and internal mental states, it may be noted that this is only a simplification of Kant's analysis. I have only reduced the processes beyond sensibility in his system to this one act of judgment. I think it was in fact the conception of Kant, but it was not expressly and explicitly indicated and was concealed by the vast machinery of distinctions between the functions of understanding (Verstand) and reason (Vernunft). If I may express the distinction apparently latent in the mind of Kant the whole process in his problem would be found in

receptivity and *activity*, as characterizing the two general functions of "knowledge." But as this way of indicating the process is too closely associated with the metaphysics of Leibnitz and the mechanical philosophy of the anti-Leibnitzians, and as all mental action, sensory and intellectual, must in the last analysis be treated as *activity*, I think intuition and cognition are more suggestive of the conceptions which we have to take of the two processes, covering the primary and the synthetic functions of consciousness. I have, of course, to free the idea of "intuition" from many historical associations and limit its import to any immediate apprehension of consciousness, but that is only a matter of definition, while cognition easily suggests synthesis, so that the receptivity and activity of Kant with their metaphysical associations in materialism and idealism may be avoided. I am not presenting a theory of "knowledge" with the assumption that it decides, without specific definition, any metaphysical doctrine, but one that shall be true, if true at all, for either the phenomenalist or the transphenomenalist. All questions of the metaphysical nature meaning ~~and implications~~ other than phenomena must be settled independently of the synthetic functions ascribed to them here. I am aiming only to simplify the mental acts involved in the ultimate or elementary process of "knowledge" and so to show how the evolution of percepts and concepts and their synthesis in judgment takes place, with the elements or contents that constitute them. In effecting this result the question is not what my present developed and complex mental states are but what their elements are, as determinable by analysis and the elimination of the purely associative factors. We may thus show how the mind proceeds from the indefinite to the definite, or from the simple to the complex, in its "knowledge" of the various adjunctive and synthetic elements in a present mature state. Hence I have endeavored only to indicate that the first and simplest step in synthetic "knowledge" is the application of causality or ground in general to the "phenomena" of "experience," without any necessary attempt to assign that cause or ground definite characteristics other than the one that it assumes to explain. This may mean that what we primarily as well as ultimately "know" of reality is what it does and nothing more. I have no objections to this conclusion and expect to take it up again, but it is no part of the system at present to either assume or defend such a conclusion. I am concerned only with the systematic application of the categories as explained in the reduction of judgments to intensive and extensive types and their regulation by the ætiological and ontological categories in the determination of their material contents. This sim-

plification of the problem prepares the way for a simpler solution of it.

But in thus conceiving the problem to have been reduced to the functions of intensive and extensive judgments it is easy to lose sight of an important consideration, because the actual order of thought in the expression and statement of its original results seems to indicate that the order of genesis is the same as that of statement. But this is not the case and it is important to remark it and to keep it in mind. In explaining the nature of the intensive judgment we must remember that the order of expression is not an indication of the chronological order of genesis. The synthetic act of judgment does not imply that we "know" the subject first and the predicate afterward and that by some hocus pocus process we get them together. The very condition of their unity in time and space excludes this, though there are judgments in which the synthesis is subsequent to the independent "knowledge" of the data that serve as subject and predicate when connected. But the important fact is that in all primary and elementary "knowledge," the order of acquisition is predicate and then subject. The actual dependence of effect or quality upon cause or ground gives the impression that the order of expression is the order of acquisition. But the form of logical expression happens to recognize the *ordo naturæ* of the relation between subject and predicate while the *ordo cognitionis* is the reverse and represents the order of genesis in "knowledge" as predicate first and then the subject which is a reflex of the application of a category to the given datum. This is only to say that the chronology of nature may be the reverse of the chronology of mind in "knowing" nature, or that the *ordo naturæ* is the reverse of the *ordo cognitionis*. Simply expressed, therefore, we have an "experience," a "phenomenon" of consciousness, an apprehension as the datum from which judgment proceeds. For all that the theory of "knowledge" may care or know there may be a stage or period of development in the life of the infant when it exercises no function of cognition or judgment as synthetically exercised in mature life. But whether this be true or not, there is certainly a point where the mind regards a fact as relative, "phenomenal," or in some way explicable by something not itself, and from that point on in the life of the individual the mind insists on referring this fact to its ground or cause. The fact or phenomenon of experience represents the predicate and the subject is the reflex of the ætiological category, and hence the order of "knowledge" is predicate and then subject. This relation of the *ordo cognitionis* to the *ordo naturæ* will be a matter of

consideration again when a further objection to the above analysis of the process of "knowledge" is the subject of attention, as it affects certain questions which have not been considered.

We may apply the same observations to the extensive judgment with some qualifications. A condition of its formation, when the two terms are non-coördinate species apperceived as alike, is that the predicate should represent an object or class already known and the subject then becomes a later object of consciousness both as to fact of its existence and its relation to the predicate. This makes the subject known last, as in the intensive judgment, though the order of inclusion logically is the reverse of the intensive. But in the primary apperceptive judgment, involved in the elementary formation of general concepts, the two or more objects of consciousness may be simultaneous and the similarity or difference between them makes them to appear to be contemporaneously "known" with the real or supposed genus of which they are coördinate species. But in all apperceptive judgments involving a comparison with the past, the most natural order is genus first and species last, a fact which makes the subject last and the predicate first in the order of "knowledge." The possibility, however, of maintaining that in all judgments whatever, unless we except the first formation of a genus, the subject is "known" later than the predicate is not an important one to insist upon in extensive judgments, because of their final reduction to the intensive as the primary one in the order of "knowledge." This is incontestable in all extensive judgments which represent subject and predicate as things or realities having attributes. The formation of the very elements of the extensive judgment thus involves the primary application of the intensive, making the category of causality or ground prior to all others and the ultimate source of mental satisfaction in the explanation of facts. The ætiological synthesis thus precedes the ontological in all cases where subject and predicate represent substantive concepts. It is tacitly implied in merely attributive concepts, for these conceived as "phenomenal" facts imply the ætiological categories even when they are not expressed, so that in all cases the intensive judgment is prior in its functional importance, or at least more fundamental than the extensive, which does not constitute the whole of the act of "knowledge." In the intensive judgment the subject is necessarily posterior to the predicate in "knowledge," and whatever real or apparent exceptions to this law appear in certain forms of the extensive or apperceptive judgment the intensive represents the ultimate process of "knowledge" when it seeks more than the mere apprehension and association of facts as phenomena.

The statements made about the *ordo cognitionis* in the problem of "knowledge" suggest an objection to the analysis of it which the treatment of intensive and extensive judgments may assume. I previously called attention to a mode of interpreting the relation between the subject and predicate in certain apparent intensive judgments which seemed to imply an identity of meaning between the two. The illustration chosen was the proposition "Snow is white," in which it was remarked that, as the order of acquiring my conceptions was that of "white" first and "snow" last, it came about that the subject in fact had no other meaning than the particular "white" which the predicate represented. This meant, practically at least, that the principle of identity might represent the content of such judgments and ætiological categories were excluded from their interpretation. This view, however, rests upon a conception of "knowledge" which I have not noticed and which does not involve the application of judgment to it as I have explained it. It assumes that the mode of forming judgments as they are expressed in language can have little or nothing to do with the process of "knowledge" and that we have to look elsewhere to find the true genesis of it. In other words it would limit "knowledge" to apprehensions and exclude all synthetic functions from it, while it would rob us of the right to think of *subjects* of any kind.

There is a division of "knowledge" into *presentative* and *representative* by which is meant the distinction between actually present "phenomena" and past "phenomena" represented in memory and imagination, Hume's distinction between "impressions" and their "copies." The distinction is an important one and involves a true conception of the elements constituting the "stream of consciousness." If "knowing" or "knowledge" expresses nothing more than "having ideas" directly before consciousness as presentations or representations mere facts of "experience," an everflowing series of events, and judgment only a mode of explaining the meaning of words which shall variously apply to either individual or to collective groups of these facts, then the problem seems to have another interpretation of its nature.

Now it is true enough that every term calls up certain "representative" qualities, or perhaps one quality, which stands for the object. We call this or them its "essential" property or properties. But usually some one quality is the properly "representative" one, as the pictured fact by which the mind "thinks" what a term or thing means. Other qualities may be implied by the term, but are not "represented" in consciousness unless a special reason makes it neces-

sary to do so. They are always possibly "representable," and have come to be associated with the term by the various coexistences and sequences of "experience," so that whatever syntheses we have are supposedly the "phenomenal" syntheses under the categories of relation, coexistence and sequence. In the use of any term, therefore, a certain quality, present or represented in imagination, is before consciousness as its equivalent and if others are implied or asserted of the same object it is as a synthetic associate of the "representative" instance. The judgment would mean connection between the two or more qualities which have become associated in "experience," while there is identity between subject and predicate in so far as the "representative" fact is concerned and the others correspond to Kant's synthetic function. A judgment will appear analytic when the subject implies the predicate idea for which the term stands, and synthetic when other qualities, not "representative" are associated with it. Such things as "categories" implying something other than the presentative or representative facts of consciousness are supposed to be unnecessary in determining the meaning of propositions or in expressing the content of "thought."

The strength of this general objection against the analysis of judgment as I have presented it is in the actual amount of truth which it involves. One of the fundamental meanings of the term "knowledge" which I have recognized as important to keep in mind when discussing its problems is that which represents it as expressing what I certainly "know," what I "have in consciousness," and this makes it convertible with apprehension, "experience," or immediate consciousness, and does not imply synthetic activity or interpretation. In this way "representative" phenomena of consciousness become "knowledge" as well as presentative, simply by virtue of the fact that, in spite of the absence of "reality" such as the presentative consciousness is supposed to possess or indicate, the actual picture of past or possible "experience" is a certain fact, "ideal" though it be. Now passing from the representation that the "stream of consciousness" is a series of presentative and "representative" states to the characterization of "knowledge" also as the various forms of synthesis applied to the elements of this "stream," we have undoubtedly a conception which shows what the mind must "think" of when it is asked *what* it "knows." The description and definition of its "knowledge" will always be in terms of the presentative and representative states, whether as individual events or collective groups of them. *What* it "knows" as *communicable* content is undoubtedly the sensible fact or "repre-

sentative," and whenever we have to make ourselves intelligible to queries in regard to our "knowledge" we have to refer to this content as its meaning.

But all this description of the process, true as it is for the social function of the communication of ideas, is wholly irrelevant to the problem of what consciousness actually does in its "thinking" and explanatory functions. What we constantly forget in the attempt to solve the problem of "knowledge" is the distinction between the condition for *communicating* ideas, for making ourselves intelligible to others in terms of their "experience," and the *incommunicable* facts of consciousness which are indicated in the various ways in which we relate "empirical" or sensible and "representative" data. No matter what the "stream of consciousness" may be, or what the syntheses of association may be, or what the "representative" identity between subject and predicate may be in the analytic aspect of certain judgments, nevertheless there is no more escape from the "noumenal" import of some terms than there is from the "phenomenal" import of others which actually imply the "noumenal." We cannot appeal to adjectival concepts as exhausting the field of what we "think" or conceive, because all terms assumed to express or imply "phenomenal" facts, events, attributes, qualities, properties, etc., carry with them the correlated implicate which the objection under consideration tries to eliminate from "knowledge," and which can be eliminated only by limiting the definition of "knowledge" to what we *have* presentatively and representatively as sensible or mnemonic content before consciousness. But in addition to the implication of all terms naming "phenomena" or attributive facts, there are also all substantive terms, which, in spite of the "representative" concept or idea indicating their predicate meaning, are as much entitled to the recognition of their transphenomenal import as any terms have to their "phenomenal" implications. Now it is precisely this which the categories indicate and they apply to these implicates whether further investigation results in characterizing them as equally relative or not. The main point is that consciousness is not satisfied with the mere apprehension of events and as long as it regards them as events it must recognize the implication of this conception, which even the associational school must do in its search for the antecedents and consequents of the facts which it accepts as the present data of "knowledge." On any theory of definitive and communicable "knowledge," the postulates of reflective and explanatory thought are actually involved in the content of consciousness and the conceptions which it forms of facts. We may claim

that such implicates and conceptions are practically useless, that they are not necessary in the regulation of actual conduct, that their existence cannot be "proved," etc. The sceptic may worry us to convince him of their validity by asking for tangible "proof," or to explain *what* they are. But all real or imaginary difficulties of this kind do not affect the question of fact as to the existence of these ideas in consciousness and their actual implication in the very conception of the terms of judgment. We may treat them as pseud ideas if we like, but they are there as much as any other ideas and even result from the purely relative import of the phenomenalist's own description of things. I have no objections to admitting that they cannot be "proved," as this always involves an application of the principle of identity, while causality or ground is not ontological but ætiological in its nature and represents, in some form, an antithesis or difference between "phenomena" or events and their causal ground. Definition and "proof" of *what* a fact or event or thing is depends, first, upon the communicability of the conception which will convince others and that is sensible representation or "experience," and secondly, upon the use of extensive judgments and these involve the application of the principle of identity or difference and not the ætiological categories. The latter only explain, they do not prove. To put the matter in another way, although the meaning of subject terms is expressed by the predicate ideas which are the *ratio cognoscendi* of them, this fact does not in any way identify the total import of the subject terms with the predicate, but is only a way of saying what the subject implies as to facts, while the presented facts of "experience" equally imply a subject idea. The fact that consciousness returns to a predicate idea to explain the phenomenal import of a subject does not eliminate the subject idea, nor contradict the opposite movement of thought in referring a present or represented event to a ground. The implication is applicable either way, so that the assumed identity of meaning between subject and predicate in the intensive judgment is only apparent and applies only to what may be called conceptual representation and not to the total import of the two terms, one of them directly standing for the subject idea and the other for the attribute idea, the two being correlated and mutually implicative. Whether we need substantive, noumenal, or transphenomenal concepts for practical life is not the question, but whether they exist and whether they represent and satisfy certain intellectual tendencies and instincts quite as ineradicable as any philosophy that talks glibly about the limitations of "knowledge" to phenomena, a view admissible enough when "knowledge" means nothing more than *having*

sensible states as occurrences. But if intelligibility and explicability in terms of causality and ground are equally facts of consciousness their admission as a part of "knowledge" is unavoidable whether they have any utility or not. This is reinforced by the fact that any attempt to explain the intensive judgment as expressing nothing more than an associative synthesis of phenomena cannot stand an application to the concrete case or illustration. For example, the judgment "Oranges are yellow" does not seem intelligible under the explanation that it means to affirm that the facts A, B, and C are D, or that the group of facts ABC are D. The fact is that the copula expresses either identity of some kind or a relation of inhesion or non-inhesion. The form of statement has no rational meaning unless this be the conception of it. The fact of coexistent synthesis is also there, as a condition of apprehending any other relation, but this fact does not force me to limit the meaning of the judgment to the mere category of space or time relations. The other is there as a part of the intellectual interpretation of what the facts imply as well as associative synthesis, and the question of utility must be settled afterward, if it be present at all. This is evident in the actual thinking of the physical sciences which always interprets its facts and "phenomena" as modes or attributes of substantive realities without regard to questions of associational theories. It was not in "metaphysics" that this intellectual habit began, but it lay at the very basis of all physical science as a part of what was assumed to be necessary for satisfactory explanation. This necessity was for a nucleus or center of reference to make all change intelligible and to escape the supposition that things have come from nothing. The philosopher will accept almost any supersensible fact rather than abandon the maxim of *ex nihilo nihil fit*.

But the force of the skeptic's and phenomenalist's position and the limitation of "knowledge" show themselves best when we ask what this "cause" or "ground" is, which persists in asserting its legitimacy. It is the old problem of telling what anything is. In such a proposition as "Snow is white" it is not always assumed that we are telling what "snow" *is*, but only telling the fact that it has the property of whiteness, and as the whiteness is "representatively" and "experientially" the same as "snow" the query to know what more it can mean, if it is not absolutely identical with the predicate, is quite natural. That is, we may naturally enough ask what snow *is* if it is not convertible with the "experience" which is certainly the prius of all that the term is supposed to indicate. To assert or assume that the "snow" is the cause or ground of the "whiteness" is at once to assert more than the

given "experience" which is supposed to be the *ratio cognoscendi* of more than a "phenomenal" fact. If the sceptic thinks that he "knows" nothing more than this phenomenal fact he asks that we give some account of the assumed reality that claims to be more than the "experience." What is a cause or ground, if it is not a mere illusion?

Now when the sceptic asks the question "What is a thing?" there is implied in this question that if we cannot tell him "*what* it is," or convince him in terms of his own "experience" what the asserted or assumed "reality" is, we have no right to believe in it. The inability to answer the query to the sceptic's satisfaction is construed as tantamount to a confession of ignorance on the part of the person questioned. But the fact is that the sceptic's question cannot be rationally answered until we know what it means or in reality asks for. It is an equivocal interrogation. It appears to ask for simple information which can be supplied by stating a matter of fact, but it really carries with its apparent demand for information an assertion that, unless proof of what is assumed in the idea of cause or ground is forthcoming, its truth is not credible. That is, behind the sceptic's question is an assumption quite as much needing support as any that he means to doubt. He neither recognizes the equivocal nature of his query nor frankly faces the assumption which is concealed behind an apparent demand for information as to matters of fact. But his assumption that I must either convince him of my belief or admit its invalidity is easily disposed of by the fact that it is not my business to convince anybody of anything whatever, if I cannot rely upon human faculty to do its duty in the process. The advantage of the sceptic lies in the fact that he can shelter himself behind the *formal* question for information while he tacitly holds to a dogmatism which is not willing to come out into the arena and accept responsibility for its assumptions or assertions. Of course, I cannot expect him to believe unless I can give him good reasons in some way for doing it, but neither can he expect me to accept his implied limitation of "knowledge" unless he can give equally good reasons for his belief. Both must agree as to the laws of thought in order to get any basis for fruitful interchange of ideas at this point and if this agreement cannot be obtained none can be. The sceptic, however, cannot well admit that we actually do think in terms of something else than "phenomena" while impeaching the validity of the process and at the same time assume or assert that the test of all truth is the facts of "experience," because the cogency of his contention against transphenomenalism is that the fact of a mode of thought is not guar-

antee of its validity and he can have no guarantee of the limitations of "knowledge" to "phenomena" except the alleged fact that mental action is so limited. But the denial that facts or laws of thinking as facts or instinctive habits can guarantee themselves leaves the sceptic where he must question the assumption that "knowledge" is limited to the "phenomena" expressed by the predicates of judgments quite as much as he questions the extension of this "knowledge" to the trans-phenomenal nature of the facts expressed by the subjects. This, however, places him where he ought to have started, namely, in the position of the agnostic, which is the true scepticism and which will say as little about the limitations as the extension of "knowledge," and this agnosticism is the confession of ignorance which is as great in one as in the other of these terms. There will be nothing to be said against this position, as no argument or statement can appeal to the lack of mental power to see a truth.

The same conclusion results from another way of presenting the case. The question "what is a thing" either demands evidence for the assertion of its existence or that existence is admitted as a fact and its "nature" is asked for. That is to say, in asking what a thing is, we have an equivocal question. We may be doubtful as to the fact asserted or assumed, or we may, admitting it to be a fact, wish to know its "nature." The former is the true sceptical question, and the latter is a question for further "knowledge" to make the alleged fact more intelligible. Now the only answer to the latter question is a *definition*, as long as the intensive judgment and its implication of causality or ground other than the predicate is the subject of doubt. Now all definition is possible only under the principle of identity. The principle of contradiction or difference is not allowed in definition. I mean, of course, logical definition, and not descriptive definition in terms of intensive propositions. If then the question, "What is a thing?" is answered by a definition and by means of the principle of identity, it must be done in terms of *extensive* judgments which are satisfied by ontological categories and do not require to more than tacitly assume the ætiological, if even this much is admissible. Now this identity required by the definition must be expressed either in terms of a like ætiological category to that which is supposed to determine the meaning of the reality whose existence is under suspicion or in terms of phenomena. But as ætiological existence is what the sceptical question doubts, it cannot be assumed to define it for any purposes of convincing the doubter, whatever else the definition may effect. To the sceptic the cause or ground is "unknown" and any definition that he can

accept as either intelligible or suggestive of truth must be in terms of what is "known" to him, as he simply pushes his inquiries farther. But definition in terms of what he "knows" must represent predicate concepts of the "phenomenal" type and not the ætiological. But this would convince or confound the sceptic only on the condition that the ætiological concepts remained indistinguishable from the "phenomenal." That result would resolve all judgments into the extensive and leave "knowledge" with nothing but the principle of identity or difference as its determinative category and with nothing to explain the distinction between coexistences and sequences that are casual and those that are causal. But conceding either the truth or error of this position, it is certain that any attempt to answer the sceptic's question in terms of the principle of identity, which is all that we can do in the communication of "knowledge" from mind to mind, must assume that the conception by which the ætiological idea is defined is "known" by the inquirer and that he is asking for an explanation of an individual case. But the fact is that the sceptic suspects the very conception by which the definition is possible and hence *subject* concepts are not usable in the process of satisfying his demand, and predicate concepts, which he admits he does "know" are neither disputed in regard to their existence and validity nor capable of proving a content supposed to be other than themselves unless the category of causality be admitted. The principle of identity will not transcend the fact given, nor give anything but an ontological explanation. It is primarily the ætiological category that explains phenomena. It is at least necessary to explain their occurrence or existence. The limits of definition and argument are such that, unless the premises contain the material truth sought, the formal process can never guarantee it. This is a truism, but we require to be reminded of it at this juncture in order to be sure that it will be applied to the concrete case. Now however the ætiological categories may coincide with the ontological, or to put it more specifically, however the principles of causality may coincide with that of identity, the two are not convertible. Again we must remark that only the principle of identity can be involved in the transmission of "knowledge," whether by definition or ratiocination. Ætiological principles can never determine the process of reasoning as a medium or vehicle for transmitting ideas, so that unless it is involved in the *matter* of the act of communication causality can never be found in the conception or conclusion conveyed. Consequently we cannot convince the sceptic or make our answer to his question about the "nature" of a cause or ground intelligible by the only resource which is left us

after the ætiological principle is made subject to the law of ratiocinative "proof." By supposition it is not convertible with the ontological and so cannot be subject to any *ad hominem* construction, and hence, if admissible, must be the product of individual and not of social functions. That is to say, the sceptic must see it for himself and if he does not there is no way to make him see it. He must be capable of analyzing the contents of his own consciousness and these must be the same as his neighbor's. The same would be true of any other principle which he might question. The ontological categories only happen not to be disputed, so that the extensive judgment and its interpretation never becomes the subject of doubt. But if he raised any sceptical question as to its validity, the social functions which constitute the essential nature of the ratiocinative process as it now acts, would never substantiate it, because its very basis would be subject to doubt and he would have to be turned over to his personal consciousness quite as certainly and quite as absolutely as he must be in the ætiological principles which cannot be made convertible with the ontological, the latter being the sole condition of all social relations and interchanges in the intellectual world.

Having disposed of that implication of the sceptic's question which suggests the invalidity of the causal idea unless its "nature" is told him in terms of the principle of identity, and hence having thrown him upon the responsibility for conviction as to the fact of a principle not so convertible, there remains the further examination of the associations and implications usually involved in the demand to know *what* a thing is.

The habit of telling what a thing is by means of a definition leads to the tendency to conceive this "nature" in terms of the principles which determine the meaning of a definition, and these principles are the ontological. As I have shown, all definitions are regulated by the principle of identity and difference, and the consequence is that all attempts to state the "nature" of a fact or thing by means of a definition will bring to the front of consciousness the idea of identity and difference as determinative of this "nature," even though substantive terms are employed in the definition. That is, the extensive judgment will always carry with it as its primary signification merely the identity or difference between subject and predicate without regard to other conceptions indicated or indicable by its terms. The principle of difference is employed, not to determine the primary element of the definition, but the secondary or differential. This is explained by formal logic. What I wish to note in the fact is that the defini-

tion of the "nature" of a thing is not completed until the differential or specific as well as its conferential or generic qualities are indicated, a circumstance that will have some significance in the sequel of this discussion.

The fundamental fact to be noticed in this process, after we have called attention to the function of definition in the communication of "knowledge," which has been a studied object and which keeps the idea of identity and extensive judgments in the foreground, is that, in spite of the formal character of the definition as embodying identity, it has all the implications of the intensive judgment. The predicate of a definition has no meaning unless it indicates, if only by implication, the attributes or qualities of the subject. The differential characteristic cannot have any other import, since it is specifically excluded from the generic or conferential term in the case. The conferential properties are implied. Even when the concepts defined represent attributive ideas the definition conceives the subject as the possessor of a property in terms of the differentia, so as to conform to the formal demands of a definition. But as this is not always the case, a mere relation being used to effect the same end, the main point is to observe that, in spite of the use of extensive judgments in the definition, the obverse side of them indicates the presence of the intensive judgment by implication at least, and the conception of qualities, events, "phenomena," comes in with its relative import demanding for explication something else than itself, whether that something else turns out on investigation to be phenomenal or transphenomenal. Besides the fact that the intensive judgment is the prior form of cognition also shows that the ultimate process of "knowledge" is in terms of the intensive judgment and not in the extensive as the sceptical position would imply. The final interpretation of the extensive judgment enforces this view. This means that ultimately the "nature" of a thing is expressed by what it *does*, by the properties which it exhibits. This fact is easily concealed by the ontological implications of the extensive judgment and also by the fact that, when any statement is made, such as "Snow is white," the further question to know what "snow" is, leads most naturally to the extensive judgment which conceals the intensive import behind the employment of ontological principles. Besides the very question to know what the thing is in terms of something else than the affirmed quality "white" creates the impression that the "nature" of a thing is something else than the fact stated and when this something else than the predicate given is indicated observation will soon show that it too is either a like predicate or implies one. The consequence is that the

ultimate mode of telling *what* a thing is simply states what it *does* or what it "is" in intensive terms. In the question the copula naturally conveys the conception of the extensive judgment and so the idea of identity, but remembering that the same term in the intensive judgment is compatible with or implies the relation of attribute to subject, we find that "is" can just as well express the "nature" of a thing in its qualities or what it *does* as it can in terms of identity with something else. This means that the intensive judgment can as well be chosen to express the "nature" of a thing as the extensive, though it does not involve comparison, and represents the ultimate type of "knowledge" in expressing the nature and limits of the process. We can, therefore as well tell what a thing *is* by telling its attributes and what it does, which is only a way of expressing its qualities in dynamic terms, as by a definition, though the latter is the only method of *communicating* this "knowledge" in terms of the "experience" of others. When therefore we want to know what a thing *is* we have only to seek what it *does* or what qualities it presents, and these are ultimately all that we can obtain as sensible "phenomena" representing the evidence of the reality whose "nature" we inquire for and whose "nature" does not need to be conceived in any other terms.

Now as the sceptical question seems to ask for something which we are supposed not to "know," and as this final outcome of the analysis results in the assumption that what we "know" is precisely the qualities or phenomena represented by the predicate we seem to confess that the ætiological principle is not "known," and in the adoption of the phrase that "all that can be 'known' is what a thing does" we may be chargeable with phenomenalism after all has been said and done. I do not object to such a conclusion if we understand rightly the use of the term "knowledge." If "knowledge" mean to *have* as a phenomenal or sensible datum of consciousness, I agree that we cannot "know" any ætiological fact and it will be hopeless to define it, as the sceptical question would demand, especially in terms of the category of identity. But if "knowledge" mean also what explains or is implied by events, "phenomena," qualities, etc., the correlates of all that is conceived as relative, then causes or grounds are equally "known" though we may not *have* them as a part of the "phenomenal" content of the act that cognizes them. In saying that "phenomena" are the only evidence of causes or grounds we do not say that the thing evidenced is not "known," except that term be limited to *having* the state of consciousness without regard to its implications. "Phenomena" are the *ratio cognoscendi* of causes, not their *ratio essendi*, as conceived

under the usual mode of representing it, namely by definition and description which are expressed in terms of comparison and the principle of identity. In saying, then, that "all we 'know' is what a thing does" we only say that the only evidence of its existence is this fact, but the *ratio cognoscendi* does not necessarily determine the *ratio essendi* of a thing. It is only a way of indicating the reason for the mind's belief or assertion of a fact. The same fact *may* be its *ratio essendi*, assuming that this idea has as much elasticity as our conception of judgment, which we have seen may be either intensive or extensive, but it will be regarded as such only in so far as we adopt the expression that a thing's "nature" is as well indicated in what it *does* as in what it *is*, expressed in terms of identity. Hence we may well say that "phenomena" are the evidence of causes or grounds, not their "nature" in terms of identity, so that we can describe this "nature" in terms of "phenomena" only after the conception of the intensive judgment which holds to this "nature" compatibly with the implication of cause or ground which the conception of "phenomena" implies, whether the final analysis discovers an identity between the predicate and subject or not.

CHAPTER VI.

THEORIES OF KNOWLEDGE.

I HAVE so far only indicated the processes by which what is called "knowledge" is obtained and have not intended to determine finally by such an explanation either the nature or validity of that "knowledge" beyond what may be suggested by the character of the process itself. But we come now to the consideration of those theories which have meant to say something about what we are supposed to "know," or rather perhaps whether this "knowledge" involves the legitimacy of any assertion about "reality" beyond the states of consciousness assumed to "know" or not "know" it. These theories are supposed to indicate the extent or limits of "knowledge" and to consider the validity of judgments affecting those limits. The two theories which have been variously discussed in the history of speculation in connection with "perception" have been called Idealism and Realism. I have already indicated the limits within which I shall apply them, namely, that they shall be treated as epistemological and not noumenological theories. This limitation we found to mean that they are modes of expression for the nature and limits of "knowledge," and especially for the limits of our "knowledge" of external "reality." I insisted that the question of the nature of a "reality" at any time "known" was distinct from the question of our "knowing" it and I mean still to carry out this conception of our problem. The reason for this will be more apparent later than at present, as the general usage of the term Idealism as a metaphysical theory tends to prevent the immediate recognition of the more limited application of it as defined here. But if we once make clear the distinction between the problem regarding the *fact* of "reality" and that regarding the *nature* of it, we shall more easily recognize the limitation of import here assigned to the terms Idealism and Realism.

I must now enter into a more careful definition of these theories and what they attempt to do. All that I have done hitherto is to indicate what they are not and what they do not predetermine. I have said that I shall treat both of them as quite compatible with either of the metaphysical theories, Materialism and Spiritualism. What we have next to do is to say what they do mean in positive terms.

If I were to ignore historical usage of the terms and the philosophi-

cal conceptions and systems which gave rise to these two epistemological theories I might find it easy to define them. I would suit the definitions to the problem to be solved in "perception" and the traditional opposition to the theories. But I might beg the whole question in this, and hence it is better to recognize what others have said about them at the starting point of the discussion.

When I come to look about, however, I find that the idealists have never condescended to any clear definition of their position. So many different philosophical doctrines have taken refuge under this conception or term that it would not be easy to define it clearly. And it seems also to be characteristic of every school of it not to do its philosophical thinking in a way to favor clear definition. Its advocates are generally vociferous in their declarations identifying themselves with what they call idealism, but they do not take the trouble to indicate definitely what the doctrine stands for. One exception can be made to this statement, or at least apparent exception. The idealist is always opposed to Materialism. This is a red rag to him and always invokes his contempt. What this "Materialism" is, however, I have never been able to identify or associate with that Materialism which has already provoked controversy. Hence I do not find in this opposition to Materialism any definite hint of what will define the term "Idealism." One term is as undefined as the other in all of the issues that have given the doctrine of Materialism its import and influence. Generally when a term is not definitely defined its relation to what it is supposed to contradict is a clue to its significance, and hence if we knew what "Materialism" represented we might easily understand what Idealism meant by knowing what it denied. But the traditional Materialism identified with Lucretius and Epicurus, and with the modern atomic doctrine and its implications in the explanation of the phenomena and functions of organic life, besides being a metaphysical theory, is not the conception against which the idealist directs his opposition. Consequently it affords no indication of what we shall suppose Idealism to be in any clearly defined issue. This would make no difference to us if the idealists had supplied us always with a definition of the issue as they understood it, as we should not require to resort to the assumed negation of "Materialism" for a suspicion of the term's meaning. But I have never yet found any definition of the doctrine which would apply in the same sense to the philosophical doctrines which masquerade under the term, and much less any disposition to state clearly the issues involved at the outset. The consequence of this is that I cannot state any generally accepted import for the doctrine of Idealism in the lan-

guage of its defenders. I could indicate what I think their position is and means, but this is not allowing its advocates fair play. There are certain propositions which they usually agree are the maxims or bases of their doctrine and which might be appealed to as a definition, or an indication of what the definition would be. They are such statements as the following: "All knowledge must be in terms of consciousness." "All reality can be known only in terms of consciousness." "We can know nothing about things except in terms of consciousness." "Things can be known only in relation to consciousness," etc. If these statements were perfectly self-interpreting we might determine exactly what Idealism means, but they are forms of expression that are either equivocal or are admissible without debate by the school to which the idealist is presumably opposed. Unless the latter is at the same time a phenomenalist he does not unequivocally commit himself to the statement that we know only mental states even when he limits knowledge to phenomena. Consequently between the sceptical position that we "know" nothing but subjective states and the relativist's position that we do not "know" things in themselves but only "phenomena," we do not find any assured limitations to the idealist's conception of his doctrine.

I have also remarked in a previous chapter that Idealism has been opposed historically to Realism. If, then, we can find a clear conception of what the realist maintains we may be able to ascertain just what the idealist would have us understand by his position. Now there is one general conception for which Realism has universally stood. It is that *consciousness can know something beyond itself*. That is "knowledge" can be of an object not itself. Now if Idealism is to be conceived as disputing this view its position is clear and it could be defined as the doctrine which limits the "knowledge" of consciousness to itself. This would establish a clear antithesis between the two doctrines, and also identify Idealism with Phenomenalism of the subjective type. But unfortunately for this clear conception of the problem, which would make Idealism identical with Solipsism, we have to reckon with practically three schools of realists and at least two of idealists. The realists divide as already indicated into the Natural or Intuitive and the Hypothetical Realists. The hypothetical realists admit that sensations do not present or represent the nature of the object of "knowledge," but are affections of the subject. They interpret the belief in the external object or "reality" as the product of an inference, based on the principle of causality. The natural realists deny that it is an inference and maintain that it is an immediate object of

consciousness. But there are two types of this which I may call the naïve and the reflective, or perhaps philosophical. The naïve is that of the common uneducated man who has never suspected that there can be a problem in the matter and who does not know or reflect upon the relation of illusion to the question. He seems never to suppose that the nature of things might be different from what they appear in his sensational experience. He takes his uncritical or uncriticised judgment as the final word on the matter. The reflective realist, not wishing to expose the certitude and felt necessity of his belief to the precarious certification of inference and also wishing to admit the problems incident to illusion and critical judgments of sense, resorts to an intuitive process for giving this "reality," though he makes it now an application of the principle of causality and now a direct "perception" based on the primary qualities of matter, with allowance for the claims of Idealism in the secondary qualities. It will be in this, however, that the reflective realist comes very near to hypothetical Realism, so near that it might seem possible to push him over the precipice into this by dexterous logic. On the other hand, there is a type of idealist, sometimes called Cosmothetic, which adopts the statement that all immediate "knowledge" is limited to the states of consciousness, but admits that the belief in the existence of an external world is too tenacious to be resolved into a sort of nihilism and so admits that this "reality" is an object of inference, and thus this type of thinkers becomes identical with the hypothetical realists. In order, therefore, to be absolutely opposed to Realism the idealist must limit the conception of "knowledge" to immediate certitude and presentations not representative of an external "reality" and adopt the doctrine of Solipsism. Any other position brings it into agreement with realism in some form, and the opposition of those theories is not what it seems in the discussions of philosophers. How apparent this is in every form of "objective" Idealism will be seen by further analysis and discussion.

Not having been able to obtain a definition of either Idealism or Realism that would embody a single clear issue between them, it will be necessary to examine the various positions indicated and the several conceptions involved in the postulates of the modern idealists. There is, of course, a clear opposition between naïve Realism and every form of Idealism. But the same opposition exists between naïve and reflective Realism, or between naïve and hypothetical Realism. Hence the idealist gains nothing by indiscriminate assault upon Realism. We must first know just what particular type of Realism he is attacking before we accord him the advantage of the argument. We may find

him doing nothing more than repudiating the ideas of his childhood without exhibiting due knowledge of the history of human thought where Realism has stood for something more defensible against scepticism than the crude ideas of peasants and children. Whatever his errors and misconceptions of idealists he has always intended that his doctrine should be expressed in a firm confidence in the belief of something else than the individual's states of consciousness. It is the definite and explicit antithesis of Phenomenalism in all forms in the fundamental postulate that a "reality" other than mental states is a certain or necessary truth. Idealism can oppose this only by taking up the position that our "knowledge" is limited to our subjective states or phenomena, that is, to Solipsism. We are brought, therefore, to the examination of this postulate and the various propositions which are advanced to define or support the doctrine of Idealism.

If we adopt the statement that we "know" only phenomena and then define "phenomena" as "appearances," meaning thereby states of consciousness and those of the subject having them, we have Solipsism as the interpretation. To escape it we should have to enter into an analysis and definition of the terms "knowledge" and "phenomena." If we adopt as the premise of our argument the proposition that we can "know things only in terms of consciousness" we have a statement which is not so clear as it seems unless it is identical with the one just mentioned. If identical with this the conclusion will be the same. If not identical with it the only meaning that it can apparently have other than this is either that we cannot "*know*" anything without being conscious of it, or that we cannot be certain of anything except our states of consciousness. The former is a truism for both the realist and the idealist, except that it assumes "conscious knowledge" to be of the subject's own states only, in which case it again terminates in Solipsism. The latter does not exclude a rational *belief* in what is not an immediate datum of consciousness so that the opposition between Realism and Idealism would be reduced to the question whether the existence of something other than the subject's own states was an object of mediate or immediate "knowledge," or whether it was an object of "belief" or an object of "knowledge." This is a legitimate distinction to make, but it has no practical importance of great dimensions, unless we accord belief far less influence on conduct than is the fact.

It is in the relation to action that the whole crux of the interests involved is to found. All belief and all "knowledge" are of interest to men only as they affect their actions. No one would care for theo-

ries of "reality" and "knowledge" were it not for the validity and effect of certain accepted maxims or supposed truths on the question of the rationality of conduct. If there be no hobgoblins, for instance, I do not have to regulate my action on the assumption that there are such facts. If there be no precipice in front of me I can continue my walk without personal danger in the desired direction. Now it is unfortunate for this discussion between Idealism and Realism that certain implications are associated with the phrases in which the limits of "knowledge" are expressed. To say that I "know only phenomena," or that I "know only my own states," is to imply that there is something or that there *may* be something which I do not know. It is agreed on all hands that there is reason to assign decided limits to our "knowledge." But it is customary to interpret the expression "I don't know" as one permitting a freedom in regard to action and inaction that is not admissible in the case of "knowledge." Scepticism has always claimed a freedom in the absence of "knowledge" which it would not assert if it were certain that the object of doubt were "known." Hence it is a natural tendency to interpret the limitation of "knowledge" to subjective states as implying the right of indifference in action related to the external "reality" supposedly not "known." For example, if I am entitled to ignore the existence of any thing not "known" to be a fact when I come to act, I might ignore the walls of my room on the assumption that I "know" nothing more than my states of consciousness. This, of course, is the conception of the case which really or apparently gave force to Johnson's reply to Berkeley in the famous example of kicking the stone. It may or may not be a misconception of the problem on which the difficulty is founded. With this I am not concerned. I am only indicating the conceptions in the general habits of mankind and the use of language that evokes opposition whenever such fundamental statements as the idealists make are made the premises of a doctrine, and we are entitled to mention the fact as a means of demanding a critical exposition of the real meaning of their terms consistent with conduct. If the idealist would supplement his denial of the "knowledge of external reality," which is an implicaton of the limitation of it to consciousness, by asserting the rights of belief where direct and immediate "knowledge" is not possible, the case might be different. But in ignoring this resource for legitimating the action of men toward that which may not be considered an object of "knowledge" he actually, if indirectly, lends support to the popular conception of the absurdity of his position and so does Dr. Johnson's mode of illustrating it.

What the idealist ought to realize is that the primary difficulty with his doctrine is the equivocal meaning of the term "knowledge." I have already called attention to its double meaning, both of certitude and systematization, in which the latter conception involves nothing more than the probability of induction, and also the further double meaning of "perceiving" and *having* or *being*. It is this latter equivocation which I wish to notice more carefully for the present.

There is a natural tendency to identify the conception of "knowing" with *having* a state of consciousness. This grows out of the frequent, if not general, assumption that intuitive or immediate consciousness is possible only for the limits of consciousness as a functional activity of the subject. We noticed in discussing Apprehension that we could not finally distinguish between sensation and apprehension, or mentation and apprehension, at least in their numerical aspects. This suggests to the mind that "knowing" and "being" a state of consciousness are the same. The consequence of this tendency, conscious or unconscious, should induce the idealist to analyze carefully the propositions on which he founds his general doctrine, and if he thinks that immediate "knowledge," or "knowing" is or implies "being" or *having* a state of consciousness, he should distinguish that certitude which he accords to the belief in objective "reality" from the certitude of "knowledge." That is, he should recognize two sources of certitude, if he admits the fact of this certitude in regard to both internal and external "reality." This would put an end to illusions and controversies about the meaning of his theory. The question is not whether we shall call our convictions regarding objective "reality" an act of "knowledge," but whether our convictions are either certain or rational, or sufficiently firm and certifiable to give our conduct a rational meaning.

The best way to test the meaning of Idealism and its relation to so-called Realism as an opposing theory is to ascertain whether the idealists are willing to accept the real or apparent logical consequence of their fundamental propositions which lead to Solipsism. There is an interpretation to these propositions which leads nowhere else. The limitation of "knowledge" to states of consciousness naturally implies, to many people at least, that the subject cannot transcend his own mental acts in what he "knows" or believes. If the idealist actually accepts this position, or Solipsism, it is difficult, if not absolutely impossible to dislodge him. I know of no way to refute Solipsism. It is logical and offers no premise, when strictly maintained, for an *ad hominem* argument against it and it is difficult to secure any other

argument when *ad rem* considerations are not appreciated by the sceptic who insists on being logically consistent in the subjective interpretation of "knowledge." But I doubt whether there has ever been an idealist who would for a moment accept the solipsistic interpretation of his doctrine. Even Berkeley, when he insisted on denying the existence of matter, was emphatic in the affirmation of something else than his own states of consciousness. He admitted the existence of some other "reality" than himself, something "outside" himself, even if he called it "spirit" (God) and other "minds" (men and animals) than his own. Other idealists quite universally agree that there are other individual beings with states of consciousness besides themselves. They are very vociferous about social units or social consciousness and not one of them would allow it to be supposed that he had any solipsistic sympathies. All this, whatever the phraseology adopted in their fundamental espistemological maxims, simply proves that they accept in some way the realistic conception of the possibility that consciousness transcends itself in what it posits. That is, it "knows" something besides its own states, though if that is an objectionable term, we may say that it accepts the existence of transsubjective facts with the same certitude that it feels in regard to the subjective, call the latter what you will. This belief is an acceptance of the fundamental postulate of Realism and makes Idealism identical with it in all essential characteristics. It appears then that the defence of Solipsism is the only hope of any direct and clear opposition between Idealism and Realism. The question as to the nature of objective "reality" does not enter into the controversy so far as the problem of transcending consciousness is concerned. There are differences of opinion on this point, but they are not affected by the question whether the area of "knowledge" is or is not limited to the states and affections of the subject. If we can on either theory transcend consciousness in what is affirmed to exist, that is, the consciousness of the individual subject, we have a position that does not define its own limits and it will only be a question of what the capacities of the subject are and the facts to determine whether this transsubjective fact is or is not like the state which "knows" it. On the fundamental question of epistemology therefore Idealism and Realism do not differ from each other in their doctrine, and there is no fair excuse why the animosities real or apparent between them should be any longer entertained.

There is a decided difference of opinion between the naïve realist and the scientific idealist, but this is nothing more than the difference between the clodhopper and the educated man on all questions in any

subject. It is a difference of culture, of breadth of knowledge, and not of opinion on the question whether "knowledge" has a range of assertion beyond the subject's states. The idealist who insists upon asserting or implying that Realism has had no other meaning than the uncritical conceptions of the uneducated would give it, either ignores the facts of history in philosophy or he is interested in the misrepresentation of the case. For it is apparent to the merest tyro in philosophy that, ever since the Sophists and the later Sceptics it has been a problem to explain how consciousness could "know" anything but its own states, and that the realist has stood for the possibility of "knowing" more than these. It is true that often the realist, in proportion as his education or interests identified him with the naïve conceptions of mankind generally, thought that we as directly "knew" the nature of "reality" other than consciousness as well as the fact that there was a transcendent existence. But the historical position of the hypothetical realist, as well the fact that the very conception of the "real" other than the "ideal" does not commit the mind unequivocally to the nature of it, shows that we have no right to impress upon Realism the uncritical conceptions of uneducated people simply to save an aristocratic and respectable position for Idealism. On the only point having any interest in epistemology, namely, the transcendency of "knowledge," they are essentially agreed. That conception of Idealism prevalent in Ethics I do not admit as relevant in this question. In epistemology Idealism is a theory as to what we "know" as fact. In Ethics it is not a name for a theory of any "reality" other than or "outside" consciousness, but for the doctrine that "ideals" are the still *unrealized* object of consciousness. It is a name for what *ought* to be as distinct from what *is*. Or it is the name for the fact that man can create an order in the physical and social world better than a given order, so that ethical Idealism is a name for possible ends of volition that are desirable and not mere facts of cognition or "knowledge" before the act of idealization takes place. The consequence is that Idealism in the ethical sense has no relation whatever to the epistemological question of the subjective or transsubjective range of "knowledge."

There have been, however, certain advantages to reflective thought associated with the development of Idealism that the realists have not been any more forward to claim than the idealists. They are the results of scepticism. The only element in Idealism that has been of any value to speculative thought has been that of scepticism, and the emphasis upon the anthropocentric point of view which it enforces. It has not been the suggestions of the term "Idealism" that have done

the work, but the fact of scepticism at the basis of the whole movement and which could conceal its own operation under an orthodox mask. If the idealist had avowed that it was scepticism that lay at the basis of his system and tendencies he would have received no hearing, but by concealing this fact and adjusting himself in some way to the conservative instincts and beliefs of mankind he has been able to secure the respect of the intellectuals and of the religious type while he evaded classification with the untutored plebs. His sympathies, intellectual and moral have always been on the side of what is best in human achievement and aspiration, though this required him to mediate between ignorant conservatism and intolerent radicalism. The necessity of concealing the sceptical basis of his system and of maintaining silence on the popular religious ideas has always exposed him to the charge of hypocrisy by those temperaments that love and exalt freedom, but this has been the price which he paid for the opportunity to be serviceable at all. This is clear in the philosophical systems of the great idealists who could be neither clear and radical nor orthodox and conservative on any of the great problems of theology. On the other hand the realist has allowed his system to be associated with the interests of dogmatism in both philosophy and theology and hence has discredited its intellectual acumen as much as the idealist had compromised his clearness and sincerity. Idealism conceals in its folds the seeds of both "culture and anarchy," depending on the question whether its issue is in Solipsism or a modified realism. On the other hand, realism conceals the tendencies of both imperialism and socialism, depending on the question whether it issues in dogmatism or a modified idealism. All these sympathies and antipathies, however, were not the necessary consequence logically of any fundamental difference between the two schools of thought in the essential question of epistemology as I have defined it, namely, the question of fact regarding the subjective or transsubjective capacity of "knowledge," but of other motives and influences altogether. The consequence is that I attach no importance whatever in epistemology to the controversy between Idealism and Realism unless the former accepts the most palpable interpretation of its language and identifies itself with Solipsism. On any other view its real beliefs are the same as Realism, as I have shown, on all the questions having any value for clear thinking and the determination of practical truth.

CHAPTER VII.

THE CRITERIA OF TRUTH.

PILATE's question, 'What is truth?' was an echo of Græco-Roman philosophy and was probably not appreciated in its sceptical sense by the person to whom it was put. But whether so or not it is the question of all inquiring minds and assumes either a desire for mere information as to facts or a demand for proof of assertions already made. The conception of a "criterion" for truth seems to have first been suggested by the Stoics, though it was implied by the work of Plato and Aristotle. It indicates that there is a standard by which truth is to be adjudged or measured. The demand for such a criterion may be made in a sceptical spirit in which it appears to deny the possibility of truth. If this is its meaning it destroys itself, as the denial of any and all truth whatever is self-contradictory. This position has itself to be true in order to make the question or doubt rational. This is the simple answer to universal scepticism, which by the very nature of the case is impossible. But while Pyrrhonism is impossible it is equally certain that we cannot say that all conceptions and opinions are true. That is, between universal affirmation and universal denial neither is true, but that the truth lies somewhere intermediate. To distinguish, therefore, what is concretely true, or what is true in individual cases, requires what may be called a criterion or evidence. This is to say that any statement made cannot stand on its own basis, unless it is what is called a self-evident truth, and consequently what does not evince its own validity must have some other fact than itself to secure its acceptance. This, then, is what is meant when we demand a criterion of truth. The abstract form of statement has the unfortunate implication that a criterion must be had for absolutely all truth, but the impossibility of universal doubt, on the one hand, and the existence of self-evident propositions on the other, show that the demand for criteria has its limitations. These limitations circumscribe the area between possible and necessary truth, and so define those cases whose enunciation does not carry with them their own credentials.

But there is no single simple criterion of truth because there is no single truth. Truths are too manifold in number and kind to be determinable by any simple standard. Each class of truths has its own criteria or credentials, even if the ultimate source of certitude in all

cases is one. This is because the term "truth" applies to beliefs as well as knowledge, to the credible, rational and probable as well as the certain. The field, therefore, over which criteria have to be applied becomes very large, and this is made all the more apparent when we recognize that in the application of the conception of criteria the distinction between mediate and immediate "knowledge" has to be drawn and each type of "knowledge" considered in its own way. The term itself, whatever else it implies, embodies all the functions supplied in the ideas of evidence and proof. It represents whatever will guarantee the truth of a statement other than its assertion, and is often also identified with the process which guarantees a self-evident truth. In the strict sense of the term, however, "criterion" must represent a "mark," fact or incident which will be a universal test of what would appear doubtful without its presence. It is this equivocation in its meaning, varying in nature according to the field in which it is applied that makes it necessary to analyze the problem. But the first distinction to be observed in the attempt to ascertain the criteria of truth is that between mediate and immediate "knowledge." Mediate "knowledge" or truth will have to recognize a distinction between certitude and probability which involves the difference of criteria in deduction and induction. Then in any case it will be necessary to distinguish between primary and secondary, or ultimate and derived truth in the application of criteria. This last distinction coincides with that between immediate and mediate "knowledge" and so must be treated as one and the same problem. We have, then, as our primary distinction that between mediate or derived and immediate or ultimate truth. Following this comes the distinction between the two types of derived or mediate "knowledge," and this gives rise to that between Logic and Scientific Method, as subdivisions of ratiocinative methods, the first being the name for the *formal* and the second for the *material* criteria of "knowledge." Consequently the three criteria of truth which invite discussion are "Intuition," "experience," or any assumed process of immediate "perception," Logic, and Scientific Method.

It would appear that these ought to be examined in their order as stated, proceeding from the simpler to the more complex. But there are reasons in the general problem of "knowledge" for taking them up in a different order. The fact that scepticism can variously raise questions about the finality of ratiocination in the determination of truth and thus convert the whole question into the validity of what must itself determine the results of reasoning requires us to examine this process of ratiocination and its relation to the determination of truth

as the first step in answering the query put by the doubter. Consequently I think it best to discuss first the nature and functions of Logic in the determination of "knowledge" and ascertain where we have to look for the ultimate test of truth, and consequently the means for a final reply to scepticism.

I. Logic.

There has been such a wide divergence of opinion as to the nature of Logic that it will be necessary to examine its history and to define it somewhat carefully. This diversity of conception is indicated very clearly in the statement of Adamson, who, after giving a list of logicians, remarks that "in tone, in method, in aim, in fundamental principles, in extent of field, they diverge so widely as to appear, not so many different expositions of the same science, but so many different sciences." This is unquestionably a fact, and a regrettable fact, as it shows an equivocal conception of the subject which prevents all clear thinking until some agreement is found in the proper functions of the science or conception of the term that will enable us to make any progress in the discussion of intellectual problems.

The reader will remember that, in the classification of the sciences, I treated Logic merely as a department of Epistemology, namely as that which deals with the ratiocinative processes, while the other departments of Epistemology were represented in Apprehension and Cognition with their various fields. I shall continue so to treat it and not to regard it as in any proper sense a substitute or synonym for Epistemology. I shall limit it to the science of reasoning, the laws of thought as ratiocinative. But the determination of its function in the acquisition or verification of truth can be effected only by an examination of some historical conceptions.

Aristotle's Organon was a combination of Epistemology and the science of Formal Logic. It arose out of the situation which evoked the dialogues of Plato, who was inspired by the desire to overthrow the doctrine of scepticism as he found it in the Sophists. Plato laid down no rules for governing human thought. He simply reasoned and did not reach the stage of development in which some definite criteria of "knowledge" should be formulated. Aristotle saw that it was necessary to systematize the processes which Plato had used and his Organon was the consequence. The fact that the whole system was evoked by the necessity of answering scepticism gave the subject an epistemological coloring, though it is noticeable, and is perhaps remarkable, that preliminary psychological analysis of elementary mental processes does not enter into his conception of the problem.

The consequence is that the logical outcome of the system, in spite of its epistemological coloring and aim, finally develops into formal Logic alone. But as Aristotle conceived the Organon it was an instrument in the acquisition of material truth as well as a formal science, the distinction not then being so clearly drawn as now. The simple reason for this tendency to develop into a purely formal science was twofold. First, the Greek reflective consciousness had no confidence in sense perception. It was the discovery of its illusory nature that illicited all attempts to vindicate belief and "knowledge." In admitting that sense could not determine truth the Greek could only confide in reasoning, Logos. Second, the Christian system abandoned all study of external nature and so was not interested in phenomena that required inductive methods, with the special emphasis upon the observation of facts which necessitated at least some respect for sense perception. Its world was a transcendental one beyond sense and when it came to seek a justification of its doctrines it had no alternative to the use of the Greek Organon of "knowledge," and in using the Aristotelian Logic it naturally made a formal science of it. The scholastic period, therefore, developed Logic as a formal science to its highest degree of perfection. It will thus be seen that the Greek distrusted sense for one reason and Christianity distrusted it for another. The Greek considered it incapable of determining the truth about the physical world and the Christian distrusted it because it gave no information about his spiritual world that transcended all "knowledge" and was an object of faith. Both, however, accepted supersensible sources of belief, the Greek making it reason which gave a supersensible physical world and the Christian making it at first, and perhaps always, faith, giving both a supersensible and a superphysical world, or what may be called a supersensible spiritual world. In time, however, when he felt obliged to make his peace with philosophy, he accepted the criterion of reason in the justification of his faith and so was obliged to utilize the Aristotelian Logic as his method, and having disregarded the study of facts he could only attempt to deduce his doctrines from existing and accepted conceptions whose origin he did not investigate.

It was the influence of Kant's Critique that converted the conception of Logic back again into that of Epistemology. It is clear that he had embodied many of the scholastic ideas in his conception of Logic, especially as observable in the outlines of it taken from his lectures. But as he developed no elaborate system of formal Logic the conceptions of the Critique overshadowed what might have other-

wise been a distinction between the problems of "knowledge" in their widest import and the narrower field of formal Logic or ratiocinative processes. The consequence has been that German treatises of Logic simply cover the whole province of the theory of "knowledge," and reasoning is a section of it which does not always receive any technical name, except as that of Logic is appropriated for it in obedience to a traditional conception of it much narrower than the wider import determining the province of Epistemology. I cannot but think this a confusing tendency, because, however we may ultimately find that the psychological process in reasoning is the same as in Apprehension and Cognition, the content of "knowledge" is so different in various cases, so complex in some as compared with others, that this difference of matter has to be taken as the basis of distinctions which cannot be drawn in processes. Epistemology deals as much with the primary psychological activities as with the secondary and ratiocinative, that is, with what are usually called the simple as well as the complex, and whether we regard this simplicity and complexity as subjective or objective it is certain that the content of "knowledge" is often more complex in certain instances than others and that this distinction of simplicity and complexity of content gives rise to names for different sciences or supposed processes for dealing with the problems so defined. Consequently, when we have the term Epistemology as a general name for the science of "knowledge" at large, it would be better to retain that of Logic for the particular and quite large field of ratiocination, considered as the combination of a process with certain complex data of thought, which has its own peculiar laws and difficulties, though all the while treating it as a department of the general subject. The special reason for this separation of the questions is the fact that the criteria of "knowledge" in reasoning are quite different, in so far as they are objective, from those in the so called primary processes of "knowledge." Now as reasoning is not the primary process in the origin of material "knowledge" it must be treated as a formal process of some kind and the science limited to it must be considered a formal science. This is the general conception which I mean to take of it. It is the most general conception of English thinkers and, of course, has its origin in the adoption of the scholastic conception of the subject, though in so far as Kantian philosophy has influenced the English mind we see a corresponding tendency to confuse the wider questions of Epistemology with the narrower ones of the traditional Logic by using the term "Logic" and discussing under its cover problems which at one time were not considered as "logical"

at all. I should have no objections to the change in the meaning of the term, if proper definition and analysis accompanied it. But the necessary distinction of problems, as suggested by the distinction between mediate and immediate "knowledge," in my opinion necessitates a corresponding distinction of sciences, even if one is made a department of Epistemology. On this account, I must regard Sir William Hamilton as having given the best conception of Logic in modern times, as he most clearly distinguishes between the general problem of "knowledge" and the ratiocinative process, assigning the latter no function in material truth. I am willing also to say, at the cost of challenging the contemptuous spirit with which Hamilton is generally treated by Kantians generally, that Hamilton has produced the most thorough analysis of the whole problem of "knowledge" and Logic since Aristotle, not excepting Thomas Aquinas and the scholastic philosophers generally. Kant made no analysis at all. He could only divide everything into "empirical" and "transcendental" without either illustration or clear exposition. But Hamilton in his notes to Reid especially has analyzed the whole field of "knowledge" and Logic in a way to leave little more to be done. His solution of the problem is another matter. I have no estimate to make of that, as I am not concerned with either its correctness or incorrectness, for the reason that I shall not complicate the theory of "knowledge" which I am presenting with any prejudices that exist for or against any system of philosophy. But I do recognize Hamilton's conception of formal Logic as the one best calculated to develop the real criteria of truth outside the sphere of reasoning which has always been the essential characteristic of the science of Logic. The various problems of human thought ought not to be jumbled together under a single term when it is necessary to distinguish between separate aspects of them. When we are limiting our consideration to some common characteristic of a number of problems we may rightly enough employ a single term to cover them. But when it is necessary to subdivide a general problem into several distinct types with differential characteristics it is equally necessary that we should have the technical terms to denote the specific field of investigation and not to confuse terms which should be kept distinct. It is, however, wholly a matter of definition and this gives considerable liberty to the investigator, but this definition is a necessity, if he does not wish to be exposed to criticism for errors arising out of departures from current and traditional uses of the same terms. A definition of terms and the consistent application of them, without implying any necessary contradiction with doctrines founded on differ-

ent definitions, entitles any man to any liberty he may wish to enjoy and he must be judged by the internal consistency of his system, independently of the question of propriety in the alteration of current and traditional meanings of the same terms.

These considerations and the development of Logic after Aristotle justify me, I think, in defining Logic as a formal science of ratiocination, as the best way to assign it a meaning definite enough to enforce the distinction which must be maintained between intuitive and ratiocinative objects of "knowledge," and so to technicalize, so to speak, that department of Epistemology which is subordinate to the primary and ultimate problems of "knowledge." The importance of so doing will be apparent in further discussion.

While I might, therefore, adopt the definition of Logic, that it is the science of the formal laws of thought, as those do who treat it as I have here conceived it, I shall describe it in more specific terms after admitting that this definition properly indicates its object, namely, the determination of the laws and conditions under which correct thinking is possible. But this definition does not explicitly indicate the function which ratiocination performs in the problem of "knowledge," and it is this function on which I wish to lay the emphasis of present consideration. Consequently I shall describe ratiocination, thus further explicating its usual definition, as *the vehicular agency or medium for the transmission of conviction, not for the origin of it; the transmission of certitude in deduction and of probability in induction.* This, I shall maintain, is the sole function of ratiocination in the problem of "knowledge," and in no respect can it be treated as the source from which any real content in "knowledge" is derived. I have explained earlier that there are two distinct meanings attached to the term "knowledge," one that of certitude and the other systematization of content in "experience." Ratiocination can do no more than transfer conviction from one content to another which does not evince its own acceptability without the unification effected by the apperceptive process at the basis of reasoning. How this is brought about will be indicated further on. All that I wish to assume now is the fact that the function of ratiocination is the transfer of conviction and nothing more, directly or primarily and intentionally.

This contention can be illustrated and proved by a brief examination of the syllogism. I take deduction as the best type for the purpose. We have always been accustomed to hear that the conclusion is contained in the premises. Taking this as the true representation, which I think no one will dispute, it will be apparent that the accep-

tance of the conclusion, assuming that neither formal nor material fallacies have been committed, depends wholly upon the acceptance of the premises. Fallacies do not show the falsity of the "conclusion" as a proposition, but only the illegitimacy of the process of inference. Both of these statements are the truisms of Logic. But as it is the truth of the proposition in the conclusion in which we are really interested, we forget what it is that has determined it for us in the act of drawing it. It is the accepted truth of the premises, not the fact of inclusion. This will be evident by stating the following accepted facts in Logic.

If the premises are false and the reasoning correct the conclusion will be false. If the premises are uncertain and the reasoning correct the conclusion will be uncertain. If I know nothing about the premises and the reasoning is correct I shall know nothing about the conclusion. If the premises are true and the reasoning is correct the conclusion will be true. In all cases where the mental attitude toward the conclusion is at all affected by the ratiocination, or apparently so affected, it is wholly dependent on the premises, and consequently upon the conviction felt in the premises. No certitude is felt in the conclusion when it is not felt in the premises, and hence the conviction felt or increased, if in the conclusion, is simply what is transferred from the premises, however they have been obtained. No new "knowledge," as content, is discovered, but only a relation not explicit before, while the conviction is derived from convictions already existent.

But where do the convictions regarding the premises arise? Are they also ratiocinatively determined? The answer is that they may be in particular instances, but this is not ultimately the case. The syllogism cannot indefinitely prove its premises. Strictly speaking no syllogism can prove its own premises, and the deductive process can not be carried on *ad infinitum* without leaving all conclusions in entire suspense. Consequently if we ever have any certain conviction regarding the premises ultimately, it must be derived by a non-ratiocinative process. The ultimate test of truth, therefore, lies in what antedates reasoning, which cannot originate, but only derive certitude or probability. I could illustrate the same facts in the process of induction where we have probability as the result instead of certitude. But the reader can do this for himself as I care only for the general principle.

A comment on Mill's theory of deduction is a natural corollary of the remark above that all conviction, certitude or probability, is ultimately obtained by non-ratiocinative functions and only transferred by these, that is, antecedes reasoning. It will be remembered that Mill depreciated deduction and subordinated it entirely to induction, main-

taining that the premises of deduction were derived by induction. The fatality of this for any certain truth whatever by ratiocinative processes is self evident. No one can claim any certitude for the inductive process, and if it supplies the premises of deduction we have no material certitude to start with and can obtain none in the end. Besides Mill relied upon deductive reasoning to prove his case! The contradiction of this with his system is apparent. Of course, when analyzed, his conception of inductions turns out to be more than a ratiocinative process, and includes "experience," observation, etc. He ought to have seen that any such conception forbade its comparison with deduction which definitely contained nothing more than ratiocination, and if induction is to be contrasted with it clearly it must also represent nothing more than that process in a modified form. What Mill should have observed is the fact that non-ratiocinative functions antecede and condition the premises of both induction and deduction in the last analysis. This will be alluded to again probably in the discussion of scientific method. All that I wish to enforce at present is the fact that Mill's position when examined, analyzed and developed terminates in the doctrine here defended, namely, that reasoning is not the origin of conviction but the transfer of it.

But how is this affected? What are the conditions of this transfer? The simple reply to this question is that all ratiocination is based upon the principle of identity. This is evinced in the character of the middle term. The principle of causality never determines it. Propositions involving the conception of causality may constitute at least a part of the *material* content of ratiocinative argument, but the principle of causality does not serve as the basis upon which the syllogistic process is founded. It is noticeable even that both premises cannot consist of causative or intensive propositions at the same time. At least one of them must be extensive, so as to insure the use of the principle of identity in the middle term. This identity, under certain conditions, guarantees the transfer of the conviction felt in the premises to the conclusion. These conditions are the criteria for determining it when this identity applies in a way to justify the conclusion. *Quantity* is this test. Identity is the fundamental condition and quantity is the test of the extent of this identity. That is, the quantification of terms in some definite and explicit form is the "objective" test of the identity necessary to draw the conclusion, if I may use the term "objective" in the Kantian sense of "true for others" as well as for the subject. I refer, of course, to the doctrine of the distribution of terms. But what I wish more especially to remark about it is its necessity and the

reason for it in the determination of the conclusion. When the subject or reasoner sees the identity expressed in the middle term, it may not be necessary to consider quantity, but when we wish to make this inclusion or identity clear to others it is necessary to definitely quantify our terms. This is shown clearly in the case of undistributed middle, where there is no conclusive evidence that the minor premise is included in the major unless the major exhausts the field of conception in which the minor must be found. The identity may be there and would have to be seen by the person to be converted, but the only secure test of the identity when it is not explicitly perceived is that quantification which makes it impossible that both propositions should be true without the inclusion of the minor in the major. The distribution is the test of this, and insures the validity of the inference, other things being equal.

The manner in which quantification affects the question is apparent in the fact that it is the *extension* of concepts that determines their numerical capacity. A term or concept taken intensively is abstract, as the intension in general concepts does not denote the whole of any individual to which the term applies, but only the conferential or common property or quality. But the extension indicates the individual wholes denoted by the concept and when this is explicitly quantified in definite terms we know that the predicate is affirmed or denied of every individual in the class. The general proposition does not indicate explicitly whether we are referring to the whole or a large part of the class and hence there is no criterion as to our definite meaning in our statements so made. Whether the inclusion of the minor premise can be assumed is not made clear unless the major is explicitly universal, say in the first figure, and the consequence is that no proof is possible to him demanding it. Thus if I say, 'Religion is humanizing,' 'Government is useful,' or 'Pine wood is good for lumber,' I use propositions which are abstract and perhaps general, in which I may be thinking of a certain characteristic of ideal religion or government and of pine wood as a substance rather than their concrete forms, and consequently my statement does not explicitly indicate that I am thinking of the individual instances as wholes. They are useless for ratiocination since they give rise to some fallacy of accident. The only way to avoid this "objectively" is to explicitly quantify our terms and in this way we definitely construe our propositions in their extension and concretely. The limits of our statement are definitely assigned in so far as the included assertions are concerned and the reasoning becomes possible. The identity and inclusion are explicitly indicated by the process.

The best illustration of this condition of reasoning, whether explicit or implicit, is in mathematics. The quality or inequality existing between subject and predicate is always indicated in mathematical propositions and this assures reasoning without fallacy. The predicate is explicitly quantified as well as the subject and the consequence is that the moods and figures can be dismissed from view in the reasoning. It is merely a question of quantitative as well as qualitative identity between terms, and when this is definitely indicated we have in mathematics the simplest form of reasoning and one in which the exposure to fallacy is the least possible. It is in this respect that I regard Hamilton's doctrine of the quantification of the predicate as correct, and as the necessary consequence of recognizing quantity in ratiocination at all. I do not regard it as of any specially practical use, but as necessary in the correct theory of reasoning. The rules for the syllogism have been developed from the observation of what was necessary in the actual use of language and the most frequent forms of reasoning. This is quite apparent in Aristotle's whole treatment of the subject. He has observed that universal affirmative propositions could not be converted simply, and at the same time he recognized that in reasoning the subject in one case at least had to be distributed. But as he did not detect that it was this definite quantification that determined the right of inference formally, he also did not see that theoretically the predicate might be similarly quantified definitely. Simply because it was not quantified in fact in some propositions he did not discover what was theoretically correct and important. Language is influenced by æsthetic and economic considerations as well as logical, and economizes the concessions to logic all it can. As nearly all our ordinary reasoning is done in the first figure of the syllogism, it is not necessary practically to recognize distribution or explicit quantification in all our terms, as it is not needed in the predicate in such cases. Consequently, economy and æsthetics, that is, rhetorical considerations, lead to the omission of all definite and explicit quantification of the predicate. Aristotle did not see this and hence, as he was extracting his rules from practice rather than discovering the reason for the rules, he failed to see that theoretically the quantification of the predicate was just as essential as that of the subject. Consequently I I think that Hamilton exhibited the correct conception of the theory of the syllogism when seeking to indicate the criterion of its "objective" forcefulness. It explained in his doctrine the nature of mathematical reasoning and shows how it is so secure against fallacy and why the ordinary reasoning of every day conversation is exposed to difficulties

by the variation from this model, and exposes the liability to error precisely in proportion to that variation.

I have referred to this quantification of the predicate for two reasons. The first is that it is the necessary consequence of admitting the principle of quantity at all into the doctrine of the syllogism. The second is that the implication of both mediate and immediate processes of reasoning that follows from the doctrine is the best illustration of the function which quantification has in ratiocination. This is that quantity is the securest test of the identity so necessary as a condition of inference, as is proved by the consequence of attempting to reason with four terms. Definiteness is the first requisite of clear ratiocination and quantity secures this characteristic and, if it be assumed to be unnecessary in subjective inference, it is certainly the clearest way to avoid indefiniteness and equivocation in "objective" ratiocination, as the actual development of language shows. The combination of quantity and quality in the identity has the effect of a double criterion for the meaning of our propositions and their relation to each other and allows no excuse for misunderstanding. The transfer of conviction becomes inevitable in such a case. The general identity between the minor and major terms might be admitted without the quantification expressing or necessitating inclusion, but there would be no evidence without this quantification, explicit or implicit, that they were related in the specific characteristic which it is the purpose of the syllogism in the case to prove.

This view of the value and function of definite quantification of term and its relation to certitude in deductive reasoning is reinforced by the failure of induction to achieve this result. In deduction we have the conclusion contained in the premises, so that quantitatively we remain within the area of our conceptions. But in induction this is not the case. The conclusion extends beyond the premises and gives universals which are not quantitatively included in the premises. Either our middle term is not distributed in the inductive syllogism or the minor and major terms may be distributed in the conclusion when not distributed in the premises. This increase of quantity, taken with the fact that objects not merely mathematical, that is, units of time and space, are qualitatively variable with a numerical increase of individuation, shows with what suspense of certitude we have to draw our inductive inferences. The identity expressed by the premises is only partial, or the absence of definite quantification of terms expressing inclusion, leaves the identity indefinitely determined and so the conclusion can have only that probability which is suggested by the amount of evidence involved and that is indicated by the numerical extent of the individuals included

in the data of the premises, a fact not definitely expressed without explicit statement. The absence of the quantification that effectually insures certitude in deduction simply shows what function is performed by that condition, while induction gets its character solely because that quantification is absent from the premises, and the conclusion appears not to be "proved" because the quantification there is expressed when it is not in the premises. We can then see why the sceptic will often say to a man who is reasoning inductively, whether consciously or unconsciously, without explicitly indicating the fact, that his argument does not "prove" his assertion. There is the recognition that the conclusion is not contained quantitatively in the premises and that disqualifies "proof." If the defendant could retort that he was only arguing inductively the objection, that the case was not "proved," would have no relevancy, as the reply should be inductive, unless the inductive inference made at first was contradicted by a well known fact.

I have alluded to "subjective" and "objective" reasoning in the discussion above and now this requires some explanation. What I wish to call attention to is a double function performed by ratiocination. Some might call it two different processes, but it may as well be called a double function. I express this by the distinction between *inference* and *proof* or argument. I mean that inference shall express the discovery of the conclusion from the premises which has for its object the enlightenment of the subject. Proof or argument means that the conclusion is known or announced and that the premises must be found for convincing another than the subject. In this case the inference or reasoning subjectively considered must be done by the person or subject to whom the proof is presented. This has already been done by the person who presents the argument. I can describe them as progressive and regressive reasoning, according as the conclusion is discovered from the premises or the premises discovered for proof of the conclusion. In the latter case the conviction regarding the conclusion is not transferred, but is already in existence, having been transmitted by some previous reasoning or discovered by some other process. But in the former case the conviction is communicated to another subject, this subject having to accept the reasoning to obtain conviction when it does not evince itself by the mere enunciation of the proposition to be proved. This communication of conviction from subject to subject is one of the most important functions of ratiocination. It is, in fact, the chief instrument for the distribution of "knowledge" and assumes that it has already been discovered, whether by "experience" or other reasoning, so that it appears to be

a social function for the communication of truth rather than the discovery of it when we come to admit that ultimately the acquisition of "knowledge" is non-ratiocinative. The process of reasoning or proof, as the communicator of conviction, may be either *ad hominem* or *ad rem*. In either case its function is to establish agreement between individuals, not to discover "knowledge" as content. The "perception" or discovery must be made by the subject in all instances. The proof by ratiocination is only a substitute for force or the struggle for existence. It is in the intellectual world what private contract is in the political and represents a method of obtaining voluntary adjustment to social conditions instead of mere obedience under police regulations. It is an objective unifier of consciousness which leads to an automatic unifier of wills in civilization. In human life we have either to fight or reason. We must conquer our neighbors either by force or by reason; that is, let them conquer themselves by accepting the cogency of an argument. Wherever there is any love of truth this latter course is possible, but where the desire for consistency and truth does not exist there can be only a conflict of wills and its consequences. Barbarism and civilization are the two things between which we have to choose, and it will be one or the other that we obtain, according to our adoption of force or reason, as the means of securing the coördination of the social will.

Now quantity is the criterion of what we can make effective in an argument. We cannot argue in general and abstract terms. Our propositions must be definite, and definiteness can be enforced only by the most explicit quantification of conceptions. In such conditions scepticism must either accept or deny the premises. It cannot display indifference to the truth or error of them and cry *non sequitur* so easily, but must define its demands at once or accept at least the presumptions against itself. This means that quantification of terms makes the issue clear and establishes the limits within which the proof must be conducted. But while it is the measure of the extent to which the principle of identity is applied and the indispensable condition to the enforcement of the conclusion and its acceptance by others, it does not originate any new truth nor do anything else except transfer the conviction held in the premises to the conclusion established by it when that conclusion does not evince its own truth. The results of the discussion may be summarized as follows:

(*a*) Quantity is the final test of escape from formal fallacy in reasoning and is thus a negative criterion of ratiocinative truth or the conviction, certitude or probability, transmitted by it.

(*b*) Proof or regressive ratiocination is not a criterion of truth to the subject but a social instrument for its communication or the transfer of conviction to another subject, and thus becomes merely an agent in producing consentaneous consciousness while the material truth of the judgments concerned must be subject to some other final test.

(*c*) All ratiocination is merely a means for transferring conviction and not originating it. It may be treated as an important criterion of truth in this respect, but not in any other sense. The conception of it as a determinant of truth arises from its function to displace doubt in regard to the conclusion involved, but it does not prevent scepticism of the premises and so is not the test of truth that the theory of "knowledge" requires.

(*d*) As ratiocination is not the ultimate criterion of truth some antecedent function must be sought to determine this. Exclusive dependence on reasoning tends toward dogmatism and authority, and since the premises are always formally open to scepticism and the ultimate test must be non-ratiocinative, the one fundamental consideration in the whole problem of "knowledge" is that *the subject cannot escape personal responsibility for seeing the truth himself*. This is apparent even in ratiocination when it is properly examined, though the fact is concealed by the habit of accrediting the reasoner with the result of imparting conviction. Unless the subject to whom the reasoning is presented "*sees*" the relation and identity involved between premises and conclusion, the perception of truth escapes and no conviction is imparted. Consequently the primary test of truth in all cases is the subject's own "perception" of it and not the external characteristics and methods necessary for communicating it and transmitting conviction.

II. Immediate Consciousness.

We have found that ratiocination in its regressive form has an "objective" or social value and comes to be recognized as the main process in the supposed credentials of "knowledge" because of the importance of its use in the concensus of opinion which is often taken for "knowledge." But the analysis of the process subjectively and the fact that its social utility concealed the primary source of the conviction which it transmits brought us to the conclusion that the ultimate source of "knowledge" was non-ratiocinative and that the subject could not escape responsibility for personal insight. This is simply to say that we are not obliged ultimately to answer all the ques-

tions that the sceptic may raise, if they simply repeat his doubt about each premise assumed to answer any given demand for proof. The fact that the syllogism cannot prove its own premises, that ultimately we have to determine the premises by a non-ratiocinative process, and that the sceptic so far accepts "perception" or insight as to admit the cogency of the reasoning when formal objections to it cannot be presented, are proofs that ultimately he must accept that criterion, if criterion it be, for such "knowledge" as is given in that way, and the existence of any "knowledge" at all is a presumption for its possibility in other directions, if satisfactory credentials can be produced to show that it does not limit itself to immediate "perception."

I have taken the terms "immediate consciousness" to denote the general class of non-ratiocinative processes in the determination of "knowledge." They have variously been called "intuition," "experience," "immediate perception," "attuition," etc. I have comprehended what is intended by these conceptions in the term Apprehension. I also intend to include in the acts of immediate consciousness all the processes of Cognition or Synthetic Apprehension. I have called them acts of Judgment, but regard them as immediate rather than mediate acts of mind. I do not include the acts of generalization or universalization of judgments. This I shall consider in its place. Here I am treating of the primary acts connected with and possessing only an immediate content for consciousness not anticipating "experience" in the future. That is to say, I am trying to ascertain the elementary data and processes which determine the first accepted "knowledge," and if possible that "knowledge" which is proof against scepticism and which either has a satisfactory criterion or does not require it for assuring its validity. I shall term these acts in general Immediate Consciousness. This is nothing more than the *cogito ergo sum* of Descartes. I need not expand it. It is too generally accepted as the ultimate source of elementary "knowledge" to be discussed. But I shall briefly examine its subdivisions as I have indicated them.

1. *Apprehension.* — Apprehension gives us the simplest datum of "knowledge." Some will say that it gives us no "knowledge" at all. But this is a mere matter of definition. If "knowledge" invariably means synthesis or synthetic content, I should at once agree that apprehension gives no "knowledge." But while we are always privileged to give what definition we please to our terms, we cannot, on the basis of our own definitions, condemn systems with different definitions. We should have to ignore them or allow them as much

right as our own, if consistently developed. Besides the history of philosophy shows that there is no monopoly of the conception of "knowledge." I have already shown that one of its fundamental ideas is certitude. This is the conception of it as applied to certain doctrines which scepticism takes of it, though denying the possibility of it in these supposed cases. Such are the existence of God, of the soul, of immortality, of the nature of the external world, etc. Scepticism never doubts the fact of synthesis, but the validity of alleged realities at the basis of phenomena and synthesis. All the explanations in the world of synthesis are no answer to scepticism, but simply evasions of the issue. Hence when we pretend to refute scepticism we are trying to vindicate some belief or certitude as to fact and "reality," so that we cannot evade the consideration of the term "knowledge" as expressive of certitude in our reply to scepticism and agnosticism claiming its impossibility in certain concrete instances. It may be true that the term is also used in certain other relations to express synthesis, and I agree that it is. But this fact is a reason for separating its two meanings and dealing with correspondingly distinct problems rather than ignoring or denying one of the two historical imports of the term.

I am concerned, therefore, at present with the question whether scepticism can apply to absolutely all phenomena and beliefs. Is there any datum that can serve both as a refutation of doubt and a basis for beliefs which scepticism is able to discredit, at least until they can give a good account of themselves? The simple "knowledge" of apprehension is an answer to this question. The simple states of consciousness, the apprehensions, are invulnerable and absolute "knowledge," if that expression can be used. There is no way to raise a doubt about them. Their relations are not an issue, but the question whether they are facts. If they were inferred we might consider a doubt about them, but they are not inferences. They are direct data of mind, facts or phenomena with which it comes into immediate contact, so to speak. They are such that "knowing" is "having," and no analysis of them into antecedent and itself as consequent is possible, or into a state and its implications. It may be true that in all adult "experience" no simple state appears in the form defined without concomitants, but this does not prevent our abstraction of the contingent elements of such a complex whole and indicating the irresolvable element of it. I am simply naming the datum and act which we recognize when we have abstracted all that can be thought as an associated content and that is commonly supposed to be an adjunct due to "experience." The ap-

prehensions are nothing more than the result of eliminating the synthetic elements contingently associated with any complex conception or state of consciousness and concentrating attention upon that primary fact or content which cannot be eliminated without annihilating the consciousness itself. This act and datum I treat as infallible, if that expression can be adopted without being misunderstood. It is summarized, as remarked above, in the *cogito ergo sum* of Descartes, which is simply the general term for the various concrete manifestations indicated in sensation, self-consciousness, recognition, etc. The facts of consciousness are not subject to the court of scepticism. We may have all sorts of doubt or discussion as to what the facts of consciousness are, as to where the line shall be drawn between what are facts and what are not facts of consciousness, but in all historical forms of scepticism enough has been admitted as fact of immediate consciousness to determine the limits of that doctrine, and however men have quarreled about definitions at this point, they have agreed that the facts of consciousness are beyond dispute, though the limits of such facts are not always determined at the same point. For example, all would agree that sensation is a fact of consciousness, but not all would agree that the existence of an external "reality" corresponding to it was a fact of consciousness. When we know what the testimony of consciousness is, it has to be accepted as final, and this qualifying statement, "when we know," does not imply that all mental states are subject to such an hypothetical qualification, but only that the limits of immediate "knowledge" are not always clearly defined in the history of opinion. As regards its own states the view has never been questioned. The dispute has been whether immediate "knowledge" was limited to subjective "phenomena," and none at all regarding the certitude of its own states and affections.

In thus assigning certitude and finality to the facts of apprehension I am not conditioning its validity in any way by supposing that it applies only to the normal and sane subject. I intend that it shall be true of the insane as well as the sane. The elementary "knowledge" of the mind must be as acceptable in the case of the insane as the sane. The testimony of consciousness has to be accepted everywhere and in all conditions. This does not mean that all which claims to be such testimony must be accepted, but that when such testimony is once defined properly it is the final court of belief. Nor does it mean that any statement that an insane person makes about his feelings or experiences is to be accepted. What the insane person actually feels or experiences is, to any one else than himself, a matter of inductive

investigation and not of immediate certitude to any one but himself. It is not his statements about himself that are acceptable or final, but only his actual states of consciousness. What they are may never be known by any one but himself. The same is true of the sane. It is not the sanity of any individual that guarantees the testimony of his consciousness, but the fact that he has the consciousness. His sanity protects his statements about it and nothing more. We can accept the statements of the normal and sane man more readily, but we know nothing more about his affections than we do of the insane. In all cases the subject alone is the direct witness of his experiences. What any one else than the subject feels or directly "knows," whether sane or insane, is purely a matter for inductive inference.

It may be contended that this position very much limits the area of positive and certain "knowledge," and I shall not contest the supposition, as it is not my purpose to extend our assured "knowledge" beyond its legitimate boundaries. All that I am concerned with is the facts of the case and these assign as distinct limits to scepticism as to dogmatism. I regard universal scepticism as impossible as universal dogmatism, even though it be desirable. I do not regard either of them as desirable and I think that scepticism, when it is defined and rational, is quite as useful in civilization as belief. But it is itself defensible only when it can admit at least a modicum of positive "knowledge," which it must do to accept the legitimacy of formal ratiocination and even the assertion of universal doubt. As a fact the sceptic has usually admitted the existence of positive "knowledge" within the limits of "impressions," sensory "experience" and immediate consciousness, so that it is not necessary here to define the problem in any but the sceptic's own terms to justify the functions here assigned to apprehension. The amount of positive "knowledge" obtained by it may be very small, but such as it is it is definitely assured, and a fulcrum is secured for the explanation and determination of all complex conceptions involving the facts of apprehension as their basis. Dogmatism may have to yield as much as scepticism in the end. But I am not primarily concerned with these questions beyond defining the elementary phenomena in the field of positive "knowledge" so far as its non-synthetic character is concerned. Whether there is any other field of such conviction is not a matter of interest at present, and I am also willing to say, is not a matter of deduction from the acceptance of this primary "knowledge."

There must be no misunderstanding as to the area of this positive "knowledge." I do not include in it the conceptions of external

objects as we ordinarily assume. In fact such conceptions as 'trees,' 'stones,' 'horses,' 'houses,' and much more such as 'substance,' 'God,' 'cause,' are not the objects of apprehension. The "objects" of this process are far simpler. They are the facts of consciousness. These are all that can be apprehended. These are the first data of assured "knowledge." I do not say that they are the only things "known," but they are the only things properly apprehended in the technical sense of that term and as defined. My "knowledge," that is assured truth, may extend far beyond my mental states, but we do not *apprehend* anything more, as that is technically defined. If there are any functions of consciousness which can present other assured truth they remain still to be discussed, and whether also they are capable of delivering such "knowledge" when supposed to exist remains to be determined. But apprehension is circumscribed by what we call the facts of consciousness. This suffices to show in the problem of epistemology that there is one province in which certitude is possible, in which one fact or conception implicated in the term "knowledge" is certified and placed beyond the corrosive solvent of scepticism. With this conclusion I may turn to the next type of immediate "knowledge."

2. *Cognition.* — I come now to treat of what I shall call the synthetic processes and products of "knowledge." Apprehension is not synthetic. It is a simple act with a simple object of consciousness. If I may adopt a barbarous expression very current in philosophy, it is identical with itself. But Cognition is complex or synthetic in that we have to take account of the mental state, and its meaning or implication, if that last word can be permitted. We begin in this act to recognize relations and to interpret phenomena. It is the rise of judgment, in fact is elementary judgment, as a previous chapter has explained. Also as explained it comprehends three types, namely, Perception, Conperception, and Apperception. These I shall treat as the elementary and immediate judgments. I distinguish them from what must be regarded as mediate judgments. The immediate judgments of which I here speak are a combination of presentation or apprehension and interpretation or the application of a category. These also I regard as giving certain "knowledge" beyond the attack of scepticism.

But certitude is not the only fact involved in cognition. Apprehension gives certitude as its main characteristic. It gives nothing else, however, as a mark of "knowledge." But cognition or judgment adds to this mark what I shall call "objectivity," externality, or an object of consciousness other than the presentation itself on which

attention may be concentrated. That is to say the meaning of a given presentation or fact of consciousness is asserted and this meaning implies the existence of a correlate to the fact given by apprehension. In sensation it is the external "reality." In mentation it is the subject. In "phenomena" it is the cause, or antecedent. In a relative it is the correlative fact. The *meaning* points to some fact beyond the present fact. Cognition interprets as well as apprehends. It associates another content with the present fact, or involves synthesis which is this associative act. It is the process which gives "knowledge" its transsubjective implication, its transphenomenal aspect, its import as expressed in the idea that "knowing" is more than "being" or "having" a state of consciousness. The fundamental question is whether consciousness does thus "transcend" itself. Can it "know" anything but its own states?

In regard to the assumed possibility that consciousness "transcends" itself in "knowledge" of the interpreting or synthetic sort, as conceived by the realist, according to the idealist's notion of that doctrine, there is a curious illusion in the minds of most if not all idealists. This class of philosophers is perpetually reiterating statements which it supposes a realist cannot admit without intellectual suicide. This statement is variously expressed. "We cannot assert any universe except that which is an object of knowledge." "We cannot know anything except the object of consciousness." "We cannot know anything except in relation to consciousness." "*Esse* is *percipi*," etc.

Now these statements, so far from being important and conclusive of a particular system of philosophy, are so equivocal that nothing can be inferred from them without analysis and definition. They may be treated as simple truisms, tautological propositions, in which subject and predicate are absolutely identical, in which case no philosophy whatever can be founded upon them. Synthetic propositions are the condition of implied truth. If "knowledge" be defined as the present state of the mind, as a functional activity limited to the space and time of the moment in which as an individual presentation occurs, that is to say, if "knowledge" means that the "knowing" act and the thing "known" are one and the same thing, then it is clear enough that we cannot assert the existence of anything but what is an "object" of consciousness. But this "object" becomes the mental state itself and the existence of anything other than it, "outside" consciousness, not "in" consciousness, cannot be "known." I am not here using the term in any necessary sense of certitude, but of compass

or content. But if it be of the very nature of "knowledge" as synthetic, as interpretative, as assigning meaning and necessary implication, that is, if "knowing" means that the object of consciousness may be something other than the state "knowing," then there is nothing to hinder the subject from asserting the existence of a "reality" whose existence does not depend on the act "knowing" it, though the assertion of this existence does depend on the "knowing." It is simply a question whether you shall define the "knowledge" in solipsistic terms, as the relativist of the Sophistic type does, or in terms of those who make judgment a process referring to facts other than the act effecting the reference. Consciousness is the *ratio cognoscendi*, not the *ratio essendi* of "reality," in the minds of all but the solipsist and the sceptic of a certain type. The consequence is that the propositions which I have mentioned have only two possible interpretations. One is that the existence of "reality" is convertible with the mental act which cognizes it, and the other is that this existence is not convertible by the mental state but only evidenced by it. The former conception limits "reality" to states of consciousness in the individual having them, and so limits "knowledge" to these. The latter admits that something may "transcend" consciousness as an object and so is neither created by the act of "knowing" nor identical with it in time and space. As I have already pointed out the idealist and realist are at one when we eliminate solipsism from the interpretation of the idealist's position, their further differenees being on the *nature* of this "reality" other that the state "knowing" it rather than the existence of it.

Now in apprehension or presentation "knowing" and "being" are one and the same thing. The "object" and the act "knowing" it are the same. If we take this conception of the phenomenon of "knowledge" as the one to define our term, the "universe of knowledge" and the "universe of reality" are identical; that is, one and the same thing. No distinction of time and space can be made between them. This is the position of the scepticism in Sophistic speculation and the later Academy. But subsequent philosophy has altered its conception of the term "knowledge" without altering the phraseology which limited what is assertible to the subjective mental acts. It has come to make "knowledge" convertible with *judgment* rather than presentation and hence includes in it assertibility of something which is not the mental act itself, and yet tries to discredit realistic conceptions by repeating assertions which originated in a solipsistic doctrine, and get all their contradiction with realistic ideas from that

origin. But as we have come to assume that an essential element of "knowledge," at least of the synthetic type, is *judgment* which is certainly not a presentation, but a positing assertory act of mind, we have a notion that implies the existence, or a belief in the existence, of something other than the state which is necessary for the "knowing." This is only to say that we have extended the meaning of the term to mean more in certain conditions than the presentation which was the solipsist's and sceptic's original limitation of the term. Consequently the opposition between the idealist and the realist, as I have already shown above, is nullified.

There is another way to establish the same conclusion. When any realist or simple-minded man supposes or asserts that consciousness "transcends" itself in the act of "knowledge," "synthetic knowledge," the idealist who wants us to believe that he is putting a very profound question will ask him, '*How* do you know this?' If the answer is not clear and conclusive the questioner thinks that his case is won. But the fact is that this question should never be answered at all until its meaning is explained. It is not so clear a query as is usually supposed. It is often put in the spirit of the sceptic, who assumes that unless you can show him '*how* you know' a thing you have no right to your belief in the fact asserted or supposed. Now this question is equivocal. It may mean that the interrogator is asking for *explanation*, or that he is asking for *proof*. The former may be rational and the latter may not. But its form covers the irrational question by the rational. If I am asking the explanatory question I am seeking the explanation of an admitted fact, the process or cause which will explain the fact. Now all that the man means who supposes that cognitive "knowledge" is transsubjective, is that it is a fact that consciousness so transcends itself and he does not care, so far as the validity of the fact is concerned, whether it is explicable or not. The failure to explain it will not discredit the fact. It simply indicates that it is not so intelligible as may be desired, but it is not questioned as a fact by the failure to assign its cause. On the other hand, if the question means that we must have proof, that the fact of the alleged transcendency of consciousness in cognitive judgment must be proved, we may answer that it cannot be proved, if we are so inclined. If cognitive judgment be defined as an immediate act of mind no proof is possible. It is only *mediate* "knowledge" that is probative. It is impossible to "prove" immediate "knowledge," except that "proof" be convertible with the "experience," intuition, insight, personal realization in consciousness, of the subject himself. But ratiocinative

proof cannot be applied to what is definitely immediate. We may be wrong in so limiting cognition to immediate "knowledge," but when we expressly do so, the sceptic cannot ask us for ratiocinative proof of it, or of the object which is said to be given by it. The fact is that the sceptic's question is a survival either of the solipsistic position or of hypothetical Realism. Where "reality" was made an inference from presentations it was legitimate enough to ask for the proof of its existence, as all inference, or perhaps rather all assertion that is in reality inference, requires proof, or involves the fairness of the demand for it. But when both idealist and realist assume that cognitive "knowledge" or judgment of this early synthetic type, as I have defined it, is immediate, the demand for "proof" of the ratiocinative sort is not rational. But the rationality of the explanatory question conceals this characteristic and only an analysis of the question will reveal the fact. Further, also, it is noticeable that the question is often asked with the implied assertion that the absence of the proof demanded is equivalent to the non-validity of the assumed objective "knowledge." That is, the want of proof discredits the claim, while the existence of proof determines its validity. This assumption can be made only in that period of intellectual development when ratiocination is supposed to be the criterion of truth. But I have shown here that ratiocination only transmits certitude and validity and does not originate it, and consequently the ultimate criterion of "knowledge," if criterion it be, is some immediate mental process, itself incapable of syllogistic proof. The sceptic, therefore, cannot ask the question at all, except as an explanatory query, unless he maintains that the belief in objective "reality" is mediate instead of immediate. But, as previously explained, the demand for the cause or process which explains how we "know" the objective admits the fact, and the fact of it is all that the realist requires for the justification of his view that consciousness can assert the existence of events or "realities" beyond the limits in space and time of the subject, or of the particular mental state which makes the affirmation.

But the sceptic may put another question which appears to continue the doubt about the validity of judgments regarding an external "reality." He may ask the assertor: 'What is this reality?' Suppose I assert that consciousness can "know" something beyond its own states, the doubter may ask me, 'What is it?' This is often an equivalent to the demand for "proof," which I have already discussed. But its real import is a demand to give some account of the "*nature*" of the "reality" affirmed. Now there are only two ways in which we

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can tell 'what' a thing is. We can name the class to which it belongs, that is, define it in regard to its qualities as a member of a genus, or we can describe it in terms of what it *does*. Usually the demand means the former, and hence if made by the philosopher is understood to be a requirement for a definition of the "reality" in terms of its conferentia and differentia, its distinctive and its generic properties. It is quite possible that such a definition of the ultimate "reality" of cognition cannot be given. My own position is that it cannot be given. As I have already shown in a previous chapter Apperception is not the process for determining either the fact or the "nature" of ultimate "reality," but that Perception and Conperception are the means for this, that the ultimate "nature" of anything must be expressed in terms of the principle of Causality and not of Identity. But it is not necessary to insist upon the truth of this doctrine in order to support the contention here. The primary question of Cognition as I am here defending it, as a source of immediate "knowledge" of an objective "reality," is not '*what*' a thing is, but '*whether*' it is other than subjective mental states. All that is here maintained is the Cognition in Perception and Conperception assert *that* an objective "reality" exists, not *what* it is in any such terms of explicitness as are demanded by the question. The capacity for giving a definition of its primary deliverances is not necessary to its validity, but may be useful in problems of intelligibility or communication. In other words, a similar answer can be given to this question as was given to the previous one discussed. The inability to tell "what" external "reality" is in terms of principle of Identity does not discredit the fact of it but in reality assumes it to be a fact and demands further "knowledge" regarding it rather than justification for the assertion, when it is the simple reflex of "experience" itself, or the necessary interpretation of a presentation when that is conceived as a related event. Ability to define "reality" does not justify the belief in it, but makes the assertion of it intelligible to others in terms of their "experience." The result here is analogous to that in ratiocination; definition only transmits intelligence, but does not verify or justify the judgment originally.

It is often certain metaphysical interests that prompt to the question. The idealist who thinks that his theory must be sustained in order to have a foothold against Materialism and who assumes unwarrantably that Realism leads to this Materialism raises the question as to what objective "reality" is, that he may avail himself of all the sceptical insinuations suggested by the failure to answer the query in a manner satisfactory to him, that he may make the existence of

matter an object of doubt or contention. But I am not at all concerned with this controversy one way or the other. We may make objective "reality" anything we please, whether it suits either idealist or materialist. All that I am contending for is that cognition in Perception and Conperception transcends the subjective state, which they are as states of consciousness, as functions of the subject, and that the "reality" which they attest is not the same thing as the mental state, even if it is *like* the mental state making the assertion. Whether the objective "reality" posited by judgment is like or unlike, similar or diverse, from the mental state making the assertion is wholly indifferent to the issue with which I am concerned. This is the mere question of fact whether consciousness can "know" anything but itself, the actions and reactions of the subject. Let me summarize the arguments for this fact.

(*a*) As I have already indicated the idealist admits all that is contended for when he refuses to accept solipsism as the proper interpretation and conception of his doctrine. Solipsistic phenomenalism denies the possibility of "knowing" anything but the subject's own mental states. But I have shown that idealism and realism are agreed on the point that there is something else "known" than one's own states, that a "social" consciousness at least is admitted which means that there are other individual conciousnesses besides our own. This is all that is necessary to sustain the contention here advanced. The argument, however, is only *ad hominem*.

(*b*) Phenomenalism, which assumes the law of coexistence and sequence in events, supposes this objectivity quite as distinctly as the believer in causality. The phenomenalist does not think that events are self-sufficient or that they stand alone. He endeavors to make them intelligible by seeking for their antecedents or coexistent events assumed to "explain" them. The externality of one event to another is a fundamental assumption of its theory and it distinguishes as definitely between "external reality" and the states of consciousness as between the different mental states. Besides the phenomenalist is as opposed to solipsism as any other philosopher and accepts an external "reality." This argument, again, is only *ad hominem*.

(*c*) The implication of the term "phenomenon" itself is that there is something besides this in existence. It is a purely relative term like "father," or "slave." It has no meaning except in reference to that which phenomenalizes. There are just two pertinent meanings to the term. The first is that of "appearance," which is the usual definition of it as given by the interpreters of Kant. Nothing is clearer than the fact that appearance is purely a relative term and implies that *some-*

thing " appears." We may not be able to define this " something " in terms of apperception or class kind and it is not necessary, as I have shown, to do so in order to accept the fact of it, because it is the principle of causality that determines the existence of this something. But " phenomenon" and " appearance " have no intelligible import unless they imply this correlate which indicates that we must " transcend " " phenomena" in our " knowledge." Of course, if " knowledge " be made synonymous with " having " sensations or mental states and nothing more it will be true that we " know " phenomena and nothing more. But if " knowledge" mean conviction that something else is a certain or probable fact, a rational object of belief or certitude, then we may be said to " know" more than phenomena in the necessity of accepting the correlate as a necessary object of consciousness although this object cannot be a presentation.

The second pertinent meaning of the term " phenomenon " will lead to the same conclusion. It is that of " event " or " change." The first meaning has generally had a flavor of subjective import, because it is the conception usually adopted by the idealist and from the general nature of his system the suggestion is that of mental states. But the meaning " change " or " event " is somewhat different. It is adopted in deference to the very idea of an external " reality." It means to describe the transient facts of both internal and external existence and hence assumes the external in its very primary import. Besides " change " is also a relative term implying that " something " changes. " Change " attaches itself to something as a mode of it and cannot hang in the air, so to speak, as a self-subsistent fact. It always has a correlate, so that we can be said to " know " more than " change " when that is " known " at all, assuming of course that import of the term " know " which I have explained. That is all that is necessary.

I must emphasize, however, the fact that, in assuming the existence of a direct and certain " knowledge " of " reality," whether external or internal, other than mere mental and subjective states, I do not mean to assert or imply that we at the same time can determine *what* this " reality " is. That may remain an open question for settlement by other means, as the case may be. All that I am contending for is that we have the right to assert on the basis of perceptive and conperceptive cognition that there is more than mere " phenomena " or subjective states within the range of certitude. What it is I might even never " know," so far as this fact is concerned. I would even admit and assert that apperception can never give this " reality " in the first conception of it. Apperception may say something about it in com-

parison with any other "reality" obtainable, but it does not originally give it. The principle of identity is not qualified to determine a "reality" other than "phenomena" in any case, though it may say something about its "nature" either in comparison with other like "realities" or in respect of the uniformity of its behavior. But it cannot primarily determine it. The principle of causality is that which determines the existence of more than "phenomena," but it does not determine the *kind* in any terms of common qualities as does apperception and the principle of identity. From the standpoint of apperception the ultimate "reality" may remain "unknowable" which is only to say that it could not be defined in terms of conferentia and differentia, that is, of *kind*. The "knowledge" of it as determined by the principle of causality is only that of the fact, not of the "nature" or kind except in so far as "nature" is expressed in what reality does. I mean, therefore, to maintain nothing more in this doctrine of the immediate cognition of "reality" than the fact of it and shall leave the determination of its "nature" to further and more complicated investigation. Only one step at a time can be taken in the theory of "knowledge" whose condition is an analysis of the complex product as the mature consciousness finds it.

I must still further remark for the reader that I am not assuming at present any distinction between "empirical" and "a priori" processes of acquiring "knowledge." I wish my statements to be true on either theory being true or false. The immediate "knowledge" which I am defending is intended to be entirely independent of that controversy that so dominated the philosophical discussions of the last century. I do not intend that immediate "knowledge" shall be conditioned upon the settlement of that issue or the choice of either side of it. Whether "empirical" or "a priori," I mean that what is given in cognition shall be certain.

But there is a decided limitation to the area of this certain and immediate "knowledge" which I have supposed. I intend that it shall extend no further than the judgment of "reality" involved in *present* fact. I am not explaining or justifying the process in those judgments which are called "universal and necessary." These must be subjected to further and different investigation. I am explaining and justifying only what I shall call the *singular and present* judgment. It is the synthesis of an apprehension and a principle of judgment or category. The application of causality or identity to an apprehension results in the interpretation of it at the moment either as proceeding from a given cause or as related in kind to another fact. It does not pro-

nounce upon its "universality or necessity." The simplest illustration of this is the impersonal judgment. For example: "It rains," "It snows," "It is clear," "It reads well," "It sounds beautiful," "It is evident," etc. The impersonal judgment aims to express the fact of an event or "phenomenon," and does not *specifically* indicate the subject or cause. It assumes a cause or ground in general, but does not name it in terms of comparison with other specific facts or "realities." Of course, the order of "knowledge" is predicate then subject as is always the case, but the order of statement is that of "reality," subject first and predicate afterward, conforming to the fact that the *ordo cognitionis* is the reverse of the *ordo naturæ*. But the immediate judgment to which I give certitude, and synthetic and objective character is limited to the present "experience" and its reference to a subject whether we are certain of *what* that subject is or not. Also whether in apperception the connection between subject and predicate as implied in the attributes involved is accidental or necessary is not assumed. It is only the present fact of identity or difference, whether contingent or necessary, that is concerned. No questions but the fact of present "reality" are involved in the assumption of certain immediate "knowledge" of the synthetic type as explained. We might extend the illustrations of it to such judgments as "This is white," or "This shines," etc. But however we express it the immediate cognitions to which I intend to assign a certitude probably as great as in apprehension are only the reference of a present fact of "experience" to its cause or its kind.

3. *Objections.*—There is a certain class of phenomena which will appear as objections to this supposed certitude and validity of cognitive judgments. They are those of Illusions, Hallucinations, and Dreams. In all of these we form judgments of "reality" and then are supposed to discover their error. Until that error is discovered, or presumably discovered, the conviction of the validity of the previous judgment is as strong as that of apprehension. But any one of the phenomena mentioned seems to remove the right to any such conviction. The force of the argument lies in the fact that as "experiences," as facts of consciousness, as apprehensions, they have to be accepted. They have one common characteristic with the facts of normal consciousness, namely, the characteristic of being a fact of consciousness, the difference being only that in one a corresponding "reality" is not valid as it is supposed to be in the other, namely, in the normal consciousness. It would seem then that the only "knowledge" of which we can be absolutely certain is that of apprehension and that all the

rest is more or less doubtful. At any rate, if we can sustain the certitude of cognition as defined, it would appear that we should have to base it on the distinction between normal and abnormal consciousness. We found in apprehension that this distinction was not required and that apprehensions were valid without regard to the question of sanity or insanity. But it would appear that, if we are to make good the contention in regard to the universal validity of cognition it must be based on its limitation to the normal consciousness and some criterion for distinguishing between the normal and abnormal mind.

I do not conceal from myself the fact that there is a real problem here of some interest and perhaps of importance in the theory of "knowledge." Nor shall I venture on a reply to these objections in any dogmatic spirit. It is possible that the answer that I shall present may appear to many as unsatisfactory. But be this as it may, I can only present such facts and arguments as are accessible, and if they are not conclusive the case must be maintained with reservations.

Let us take first the "phenomena" of illusions. Now it is peculiar to them that the very conception of "illusion" implies a standard of "reality" by which to determine their existence. We could never discover an illusion unless there were some "reality" from which they are a variation and exception and by which their nature is estimated. That is to say, we should never discover illusions but for this variation and no distinction could be drawn for polemical uses between the "real" and the "unreal." Just in proportion to the certitude that there are illusions would we have a certitude of the "reality" which determines them.

But there is another fact of much greater importance than the one just indicated, and perhaps more satisfactory as an answer to the question. It is that an "illusion" is a false inference, or due to a false inference, from a fact of "experience." It is not opposed to cognitive judgment as I defined it, but only to *inferential* judgment. Thus I see an object before me which I take to be an orange. Now "orange" denotes a group of properties more numerous than may be presented in conperception. I may have only the visual "percept" of it, and I infer from previous "experience" that the tactual and savory properties will be found in the object under the appropriate conditions. If I put the case to the proper test to decide the truth of this inference I may find it erroneous. The object may be a piece of soap like an "orange" in its visual appearance. Hence I call my previous "judgment" an illusion. Cognition does not require that I should immediately "know" that the merely visual object should be

an "orange," but that before I pronounce such a conclusion I must have the adequate conperception. All that cognition gives, according to the definition and explanation of it, is the existence of a cause other than the presentation, and not that it should be either a complex of attributes or any specific object of "experience" involving memory and inference. That is given in all illusions as well as other states assumed to be free from their defects. We always assume that both the illusion and the "experience" which turns out to be an illusion are caused, have a subject, though *what* that subject or cause may be is not determined by this merely general fact. The cause is not necessarily the fact or expected fact that is inferred, in fact, one might say, is never that, but the reflex of the actual "experience" we have rather than the ground of some inferred and possible "experience." This is to say that cognition and its certain "knowledge" still holds good in illusions. The definite ground or cause of them may be inferred in so far as that is supposed to be identical with the ground of the inferred "experience." To illustrate, when I infer that the visual object before me is an "orange," I suppose that under the appropriate conditions the tactual and savory qualities will be present in consciousness, which is to say that I should expect to find that the cause of the present sensation is the same (*numero eadem*) as that which would explain the corresponding tactual and savory qualities when realized. Only conperception could ever decide the truth of this inference. If conperception be applied and the inference is not verified we say that the original supposition was an illusion, and this means only that the inferred sameness of the cause for the visual object with that for "experiences" of another kind is wrong, not that there is no cause or object at all present. It will appear, then, that cognition as I have defined it, namely, the process of affirming the simple fact, that of a "reality" other than the "phenomenal" event, is still valid and holds true even of illusions.

A similar answer to the objection from hallucinations can be made. They differ from illusions only in degree. They are more constant and fixed, and the abnormality is perhaps more decided. But whether the same or not in kind with illusions, the same argument applies. The question is not whether the cause assigned by the hallucinated mind is the correct one or not, but it is whether it is right in assigning any cause or ground at all. It will satisfy all the conditions of cognition if no other cause or ground is assigned than that of the subject himself, and hallucinated persons probably refer the "experiences" or presentations invariably to themselves as their own. This self is some-

thing other than the "phenomenon," even if it is not "external" in the sense of outside the organism.

A further reply is possible. The theory of hallucinations in physiology and psychology maintains that they are not purely spontaneous phenomena, but the effect of secondary stimuli, that is, of stimuli as foreign to the brain centers involved in the hallucination as are stimuli outside the body. The only difference between them and the normal experience is in the definite coördination between stimulus and sensation in the normal case and the incoördination of the hallucinations with their stimulus. That is to say, the hallucinated mind infers the identity of the cause of its "experience" in the real hallucination with the cause in the normal "experience." The error is then in the inference and not in the fact of an "external" ground of the phenomenon. The physiological explanation assumes as necessary for its nature the existence of an "external reality" quite as certainly as in normal experience, only it does not require the normally specific cause.

Now as dreams are only a type of hallucination and generally explained by some organic stimulus, they and their relation to the cognition of "reality" are to be explained in the same way. In addition to this fact they are also hallucinations that lie midway between the properly abnormal phenomena of that name and the illusions of the wakeful state. Consequently they are open to the study of the subject in his normal and wakeful condition as the ordinary hallucinations are not. It is interesting to note, therefore, that the very fact of the existence of dreams, as different from the "experiences" of the normal waking state, requires the waking judgment for its determination. That is, we can determine the illusory character of dreams by comparison with the waking life. If the waking life and its judgments are the standard, we can assign dreams an illusory nature only on the assumption that the "reality" of the waking life is absent. But it is perhaps more important to remark that the dream life is not usually characterized by the reflective feeling of either "reality" or "unreality," but that the distinction arises only in the waking and reflective state, and if once we assume that this latter is the standard rather than the bare apprehensions of sleep we must accept the consequence which is the interpretation of the dream according to the principles involved in the waking and reflective consciousness. Moreover, if we accept the view that dreams are only the waking state of some one or two senses while the others are still asleep we can understand that dreams in their sense of "reality" are simply the result of the inference which even the normal waking consciousness would

draw under the same circumstances, but is prevented in this normal state from drawing by the presence of the normal corrective, some space or sensory fact incompatible with the inferred fact. Dreams are thus illustrations of both illusion and hallucinations and do not stand in the way of *some* "reality" as the object of consciousness, though it is not specifically the inferred "reality" which we should expect in normal "experience." The cause, or stimulus representing the causal "reality," is secondary.

But while we thus vindicate the certitude and objectivity of cognition in perception and conperception we do not obtain for them any large area of application. The "knowledge" given by them is small or represents a small area. Both apprehension and cognition are confined to the present facts of "experience" or consciousness. The former has none of the material content of judgment as synthetic, though judgment has apprehension for its basis. But judgment in so far as defined and in so far as it represents the kind of "knowledge" with which we are at present concerned, namely, the simplest facts of certitude and objectivity, deals with the present data of apprehension, and all that it can pronounce with confidence is the existence of an *indefinite* ground or cause which can be *specifically* determined only by further methods. The area of this certain and objective "knowledge" becomes very small, and it contains very little of those ideas which represent the main interest of science and philosophy. We have accomplished very little in the problem of "knowledge," so far as it interests men generally and we may not be able to get any farther. We have found that there is a vast system of conceptions, beliefs and convictions which represent various combinations of apprehension, cognition, association and inference whose validity is not subject to so easy an explanation as a reference to these elementary processes of apprehension and cognition. The investigation of these complex processes and the measure of their validity and invalidity depends upon the criteria supplied by scientific method. But prior to the discussion of this is the fact of generalization or the universalizing of judgments. We have found that apprehension gives a present fact and cognition gives only a present singular judgment. "Knowledge," however, as usually conceived, involves judgments which are supposed to be "universal" and some of them "necessary." Are these on the same footing as the present cognitions?

4. *Generalization.*—We have already found how generalization takes place and that it is a process of extending a judgment beyond the present moment or the present locus of "experience." It remains

to examine the validity of this act. Such judgments always involve some form of plurality in their meaning. They are called Particular and Universal propositions. Possibly we could add what may be called the General proposition. This last, however, is ambiguous in its import. It is particular in its form and is often taken for universal in its meaning. It should, therefore, be treated as one or the other in clear thinking. "Some men are black" will illustrate the particular judgment, and "All men are mortal" the universal. But there is still an equivocation lurking in the copula and related to the modality of the judgment. This is an ambiguity which is not often noticed. Thus I may say, "All war is demoralizing," or "All poisonous substances are injurious," and I may mean either that they are so merely in fact or that they are necessarily so. The copula is or "are" does not indicate which meaning I intend. The consequence is that I shall divide judgment into three types, the *actual*, the *mnemonic* and the *a priori*. The actual judgment is illustrated by the proposition, "This is cold," meaning nothing more than the fact that a given object *is now* cold. Nothing is said or implied as to the past or future. The mnemonic judgment, though the copula is of the present tense, subjectively assumes that a statement is made involving past experience and is illustrated by such propositions as "Men are (always have been) mortal." This judgment states a fact of the past as well as of the present, and may keep the future open to further "experience" or knowledge. The *a priori* judgment is the universal and necessary proposition. It means that the assertion holds good for all time and place. It may be illustrated by the proposition, "All matter is (necessarily) extended," or "Two and two make four."

The actual judgment may be dismissed from consideration at present, as it has been virtually discussed in the problem of cognition, generally including perception and conperception. It is the actual or present singular judgment that is given by that process and nothing more, according to the definition of the process. In generalization or the pluralization of judgment we are concerned only with the mnemonic and *a priori* propositions. We may briefly describe them as the *factual* and the *necessary*. In the problem of "knowledge," however, the factual judgments are not a subject of dispute. Their validity is admitted with the recognition of the facts. Whatever the process of determining the fact of any given connection between subject and predicate, the validity of the judgment asserting it is not subject to doubt or question when the process is not disputed. The real problem of "knowledge" is the right to assert a necessary connection between

subject and predicate, a connection that is to hold true of the past and future independently of "experience" or actual observation and memory. Consequently, the problem is to determine the criterion for the validity of *a priori* or universal and necessary judgments. That is, when am I entitled to suppose that an assertion is absolutely universal and necessary and not reducible to some form of particular or merely factual proposition?

Preliminary to the answer to this question several matters of importance will have to be examined. The first is the recall of the way in which we come to generalize at all. We have found previously that the *ordo cognitionis* and the *ordo naturæ* in propositions or "knowledge" are the reverse of each other. The *ordo cognitionis* is predicate, then subject, and the *ordo naturæ* is subject, then predicate. Now, in simple cognition the only evidence that we ever obtain for the existence of the subject is not only in the fact of apprehending the event or events represented by the predicate of the perceptive and conperceptive judgment, but it is more particularly the assumption or "knowledge" that it is a relative fact and to be explained by the principle of causality. The subject thus becomes a reflex of this principle and is, as explained, an indefinite "this" or "it." Its specific character as discriminated from other centers of reference is a subject of determination by additional processes. But we state this order of dependence in a manner the reverse of its discovery, and hence the cause is put as prior to the effect or attribute. But it should be noted that if we suppose that this attribute is a "necessary" one of the subject, whatever "necessary" may mean, we expect to find it in *all* cases of this subject in time and place. This expectation is based upon the uniformity of causation, no matter how we may suppose that such a law is derived. This identity of cause in all instances means that the effect or fact of "experience" is the same in such cases. The evidence is the fact of apprehension and the uniformity of kind in the facts apprehended. But without stating the case in terms of the *ratio cognoscendi* we extend the judgment to *all* cases on the ground of the identity of kind expressed by a universalized subject as determined by the presence of the same attribute. It is not the identity of subject and predicate that determines it, but the identity of the different subjects, or rather their essential similarity, as determined by the sameness or similarity of the predicate or attribute in each case. The subject and predicate may be identical as a matter of fact in certain cases, but the universalization is not based upon this circumstance. Hence for the moment I am dismissing the question "*how*" we come to "know" the

universal and am concentrating attention upon the "*ground*" of the assertion. That is the principle of identity in the subjects and in the predicate as an object of "experience" or apprehension. How the principle of identity is the determinant of necessary judgments will appear in the further analysis of the problem. All that I indicate at present is the fact of it.

It will be important to note a division of judgments bearing upon the question under consideration. This distinction, as involving an important difference in nature, is not always recognized, if ever, in the form in which I wish to state it. I shall therefore divide judgments into *mathematical* and *substantive* judgments. Mathematical judgments are based upon space and time. Geometry and its congeners represent the mathematical problems of space. Arithmetic and its congeners represent the mathematical problems of number in either space or time or both. Substantive judgments are based upon the conceptions of substance and attribute, whether material or mental, or any and all other "realities" other than space and time. The field may be best illustrated by the *physical* world and it may not be necessary to draw our representation of such judgments from any other province. Hence we may take all the judgments in physical science, except those which are based upon the space and time quality of matter, as representing what is meant by substantive judgments, "Iron is a metal," "Wood is combustible," "Snow is white." Mathematical judgments are illustrated by such as "Two and two make four," "The angles of a triangle are equal to two right angles," "Things equal to the same thing are equal to each other."

Now before discussing the difference between these two types of judgment in the problem of *a priori* and necessary truth I must call attention to certain differences between them in the relation of subject to predicate. In mathematical propositions this relation is that of either *equality* or *inequality*, quantitative identity or difference, without any reference to qualitative character. In substantive judgments the relation is inhesion or exclusion for intensive and similarity or diversity for extensive propositions, and hence may be said to be qualitative in character. Now the generalization of the judgment does not depend on the question whether this relation between subject and predicate is quantitative or qualitative, but upon the question whether the subject remains the same or constant in space and time and upon the question whether the predicate is "necessarily" connected with the subject in any case.

It is apparent, therefore, that the problem requires us to say some-

thing about what is meant by "necessity" or "necessary" connection. There are various meanings of this term which make it difficult to fix upon any single clear import for discussion. Any dictionary will show this to be true. But I think there is one general conception of it which will cover two or more specific applications of the term. This is found in its contrast with the idea of freedom in which possible alternatives to any given fact or event are supposed instead of being excluded. "Necessity" in such cases, therefore, implies the impossibility of alternative facts or events, and so the constraint of assuming only one fact, if any at all. This general conception will cover the ideas of both logical and physical "necessity." Logical "necessity" is the constraint of accepting a conclusion or belief which the evidence or argument compels. Physical "necessity" is inevitability of an effect, fact or event under the conditions supposed to be the cause. Now as to the "necessity" of the connection between subject and predicate in any case there is first the mere question whether any identity exists between them and second the question whether the connection is supposed to represent the idea of causality. In the first case the "necessity" is convertible with identity or implied by it, and in the second case causality has no meaning unless "necessity" is implied by it. This does not mean that any cause is itself a "necessity," for there may be no causes at all, so far as we are concerned, but only that, if there is an effect, if there is any fact beginning in time, it requires a cause to explain it. It is the assumption that any fact is an effect or event that compels us to talk about causes, and that compulsion is simply the law of our nature to assume some cause where we suppose, believe, assume, or are certain of effects. The "necessity" of the connection between the fact represented by the predicate and its cause or ground, in perception and conperception, is simply the correlate and reflex of the law of thought about such facts, while the "necessity" of the connection where similarity is involved, as in apperceptive judgments, is a reflex or representative of that idea of persistence or fixity for which "necessity" has often stood in human thought. But once assume thus the existence of "necessary" connection in any individual case the only question that remains is that of its uniformity afterward, and that uniformity will be guaranteed by the identity of the subject and predicate in space and time. This means that the evidence of the "necessary" connection will depend more distinctly upon the identity of the subjects in space and time which are indicated by the identity of the predicates in "experience." The prediction of universality which *a priori* judg-

ments embody will depend on this uniformity of the two terms and their connection.

Now in mathematical judgments, which are based upon the world of space and time, we deal with subjects which are changeless. Space and time are each homogeneities, continua, self-identical throughout, if I may use that expression to define their unity of kind, not between each other but between the parts of each and the whole, so to speak. They are the principles of both continuity and individuation. In dimensional quality they determine continuity. In divisional quality they determine individuation, points that in space and moments that in time. Points are the individual units of space, moments those of time. The units are identical in kind and the collective whole is continuous and identical in quality, but not in quantity, with the units or parts. They are the constants of nature. They are not complexes of attributes, nor grounds of variable modes, but "realities" with but one fixed property, if that expression can be used, or dimension, namely commensurable quality. In fact, one cannot well distinguish between the quality and the "reality" of which we may think it necessary to speak when referring to quality of any kind in time and space. "Commensurable quality" is all that we have to think of in space and time. The consequence is that they represent the best illustrations of the principle of identity that we can choose in a concrete form. The subjects of mathematical judgments therefore, represent facts having or embodying as perfect identity of kind throughout space and time as we can imagine and the identity between subject and predicate, as dealing only with quantity of commensurable quality, is so definite that the generalization of all mathematical propositions can be made *a priori*. In the judgment "7 + 5 are 12," dismissing the actual and mnemonic, or factual judgments, as not the subject of dispute, we have the *a priori* judgment, that "7 + 5 are always and necessarily 12," simply on the ground that the subject remains constant, changeless, and the predicate is quantitatively and qualitatively identical with it. The principle of identity thus determining the case, we have a necessary truth of which certitude can be proclaimed, just as the certitude of the conclusion in deductive reasoning is determined by the same principle. In mathematical judgments we can reason from the singular to the universal, so to speak, because there is no possibility of any qualitative difference between them.

In substantive judgments we are dealing with a world of change as well as incontrovertibility of subject and predicate qualitatively in intensive propositions, and in extensive propositions the convertibility

occurs only when quantity is considered. But as extensive propositions have their ultimate meaning determined by their conversion into intensive judgments we can reduce the problem of generalization in substantive judgments to that of the intensive propositions, such as "All men are mortal," "Snow is white," or "Blood is red." Now in intensive judgments there is no evidence of identity of kind between subject and predicate. As the properties of the subject change under various conditions while the subject or substance is supposed, in the law of the indestructibility of matter and substance, to remain constant or to persist in space and time, we have conditions under which it is difficult to generalize with *a priori* confidence and certitude, as in mathematical judgments. As I have indicated, *a priori* generalization depends on the uniformity of the conditions under which the relation between subject and predicate can be asserted. When subject and predicate are conceived as convertible with each other either quantitatively or qualitatively or both and the subject or predicate are assumed to be changeless in space and time, the universality of the judgment of perception and conperception is adequately guaranteed. But when we begin to deal with a universe of change, or of phenomena, the generalization will be subject to other conditions in the determination of its validity. On the other hand, in definitions and in abstract conceptions we seem to be able, in spite of this world of change, to generalize with tolerable certitude. Besides we may generalize hypothetically with as much certitude as in mathematical judgments. Consequently it will be necessary to consider the various conditions under which the certitude and incertitude of these generalizations occur.

It will be important to remark, however, that this world of change to which I have referred is qualified. The change is in the predicates of "reality" and is not supposed of the "reality" or substance itself. The changes are in the modes of a changeless "reality," the "phenomena" are activities of a subject or substance which remains permanent and fixed as a subject of phenomena. This is illustrated in the doctrine of the indestructibility of matter and the conservation of energy. Whether these doctrines are true or not is indifferent to the present question. I am stating them as believed. That is all that is necessary for my present contention. If it should be disputed we should only have to hold the fundamental doctrines of physical science in abeyance. The conceptions here defended are only obtained in deference to the doctrines of physical science. In all cases, however, the predicates or phenomena of "reality" are represented as modal changes, so that there is not the same constancy or persistence in the "physical" world

as in the mathematical worlds of space and time. Now it should be observed that in so far as substance, whether material or mental, participates in the worlds of space and time, in extensive and protensive quantity, it becomes subject to the laws of mathematics, those of space and time, and all perceptive and conperceptive judgments involving this relation will be generalizable as are the propositions of pure mathematics. Beyond that the generalizations must be examined with some care. All this is only to say that when the predicate of a judgment is conceived as qualitatively and quantitatively identical with the subject, as in mathematical propositions, the generalization can be *a priori* certain, universal and necessary. But when this relation does not obtain, the problem becomes one of different conditions and must be submitted to analysis. Let me begin with definitions which have universality and necessity.

(*a*) In all definitions we have a combination of intensive and extensive judgments in which there is such a quantification of terms that the subject and predicate become quantitatively and qualitatively identical. The subject and predicate are thus necessarily connected or related, so that wherever either term is found the other must be found by virtue of this identity, and the universality and necessity are but a reflex of the law of identity in the case. For example, "Man is a rational animal," in which "rational" is taken as the differentia and "animal" as implying the conferentia. The predicate is thus identical with the subject as constituting the whole of it, and hence where we find the predicate, or the qualities represented by it we should find the same subject, and the relation is necessary as being convertible with their identity. The definition, however, is nothing more than an explication of the meaning of the two different terms, so that the definition means only that wherever we use the term "man" we should expect to find the qualities expressed or implied by the terms "rational animal," not that there is any constancy or persistence in the "realities" so named. Our concepts and terms must have identity and constancy of meaning, whether nature is such or not, and hence definitions have a formal universality and necessity which is important for the communication of "knowledge" and for the interpretation of facts when they occur, but are not indicative of the constancy and identity in space and time of the facts which they interpret. This is only to say that the "knowledge" (certitude and necessity) expressed in definitions may not have or require objective "real" content, valid meaning and implication of a "reality" other than an idea as occurs in perception and conperception, but simply implicates the identity of subject and predicate for thought

without implication one way or the other in regard to "reality." The "reality" when it is found will be observed to accord with the "ideal" case. It is a mere problem of identity, and the world of definition will be the same as the world of mathematics. The universality and necessity are but other expressions for the identity of the subjects and predicates, and the judgments will not hold good for any "real" world unless identity, constancy, or homogeneity are characteristic of it as they are characteristic of the concepts and their relations to each other.

(*b*) There is the ordinary, apperceptive or extensive proposition which must be briefly examined and the generalizations involved in it. It may be illustrated in such judgments as "All men are vertebrates," "Iron is a metal," "Wood is a substance," 'Letters are symbols," or "Philosophy is a science" and "Painting is an art." Now if the generalization in these judgments is more than factual or empirical, whether actual or mnemonic, that is, if they are universally and necessarily true, as in mathematics, it must be because of some application of the principle of identity in them which will enable us to extend them beyond their empirical application. Now, being apperceptive judgments, whether factual or necessary, they represent some sort of identity in kind between subject and predicate, or between the things expressed by their terms, and hence the necessity of the connection between them, even in their empirical conception. But the question now is whether this connection will hold in all space and time. Now if the predicate, or quality expressed by it, represent an identical or persistent and constant fact in time or space, the identity of the subject in kind goes with it, simply by virtue of the fact that, being apperceptive or extensive judgments, the two terms are identical in their implications of properties, identical in quality though they may not be in quantity. They partake of the nature of a definition in all but their quantification, and this fact carries with it the implication of the necessity of their connection, if the fact expressed by the predicate is constant in "experience" or the same in thought. The only difference between this type of judgment and definitions is that the latter are *simply* convertible, owing to the qualitative and quantitative identity between the two terms, while the former are only qualitatively identical, and this identity suffices to give them universality and necessity in space and time, but only in so far as the quality expressed by the predicate is identical with the quality expressed in the subject. I am dealing only with the extensive and apperceptive import of the propositions and nothing else, and this involves identity of kind between subject and predicate and identity of kind in space and time of the

predicate as an object of "experience." The necessity, however, indicated is not the necessity of this identity in space and time of the predicate as a fact, but only the necessity of its relation to the subject which it evinces. The generalization is only a reflex or embodiment of this universal or necessary relation. That is, the subject must mean the same thing wherever the qualities are found which determine its meaning in the individual instance. But it is apparent that only when the judgment represents an embodiment of the principle of identity in some form that its necessity can be assumed and that identity must be between the two terms of the proposition as a guarantee for the possibility of generalizing at all, that is, of asserting the connection for all individuals, though the generalization may be only hypothetical.

(*c*) I next take up intensive judgments. They are illustrated in all propositions representing the relation between substance and attribute. For example, "Iron is hard," "Oranges are yellow," "Snow is white," "Man is rational," "Water has specific gravity," etc. We have in these judgments examples in which the subject and predicate do not seem to be in any respect similar or in that regard representative of the principle of identity. So far as the principle of identity is represented by unity of space or time they may embody it, but not in the conception of similarity which is the important condition of necessary connection in universal propositions, as the assumed plurality of subjects involves at least a numerical difference. The absence of this identity between substance and attribute implied in the intensive judgment, taken with the fact that the substantive world is one of change, in many of its aspects at least, prevents us from generalizing unconditionally in intensive propositions. That is to say, we cannot generalize an individual case of perception and conperception with any *a priori* certitude and necessity without recognizing conditions of its validity which apparently hold good in some cases and not in others. For example, suppose we have the individual instance in perception of "This iron is hard." We cannot assume from this that "All iron will be hard," because "iron" in a melted condition is a liquid, in a volatile state it is a gas, frozen by liquid air it is brittle. Hence we cannot say that "All iron is hard" in the ordinary import of that term, "hard," meaning that "Iron in all conditions is hard." I can equally say, "Iron is volatile," "Iron is fluid," "Iron is tough," "Iron is brittle." These are contradictory judgments as they stand, though all true with the qualification of the special condition in which the predicate holds true of the subject. This is to say that in such intensive judgments I cannot generalize in an *a priori* manner, except that I

assume an *identity of the conditions* under which I observe the connection of subject and predicate in perception and conperception. The extent to which we can generalize in such cases is dependent upon inductive methods and so the generalization does not represent a necessary truth for all time and space in the world of change, but only in the identity of the conditions determining the relation in the first instance.

The last remark suggests the reason for the apparent validity of the universal judgment "Snow is white." This seems to be necessarily true. But this is because the subject is a name for the condition of a given substance in which it appears always to be white. Or perhaps we can express the same fact in another way. The whiteness concerned is the evidence of the condition of that substance which I call "snow" in that condition, and "snow" becomes not the name of the substance, but for its condition which is whiteness of a certain sort. In spite of its substantive form the term "snow" becomes attributive or phenomenal in its import, and convertible with the predicate, that is, identical with it, and the generalization and necessary connection apparent is due to this fact.

Now it should be observed that the subjects of all judgments, extensive or intensive, are *substantives*, the predicate is substantive only in extensive and never in intensive propositions. But in spite of its substantive form of expression the subject is not always substantive in its direct and primary import, but only in its secondary meaning and implication. Hence before we can settle the *a priori* and necessary character of generalizations in intensive judgments as formally defined, we require to distinguish between subjects of propositions that denote substances and subjects that denote their condition, or denote attributes or phenomenal facts in spite of their substantive form. In the former case *a priori* generalization of the certain and necessary kind is not possible, because there is no apparent identity between subject and predicate implied by the conceptions and the predicate, in the individual case, may not represent as persistent a fact as the subject, and it must do this to justify the necessity of the generalization. But in the second case, where the subject may be identical with the predicate in spite of its form of expression, the *a priori* generalization is possible.

What has just been said about the double import of substantive terms brings us to an important aspect of the present problem. If we could assume but one meaning for intensive propositions in the denotation of the subject and that the mere conception of substance with indefinite variability of its predicates or attributes and conditions, the

whole case would be clear against the universality and necessity of the judgments involved. But the fact that substantive terms may have an attributive or phenomenal import, as well as the "real" or that of a substratum, establishes a condition of things which suggests that we may treat the subject of all intensive judgments in this way and disregard the consideration of the substantive "reality" altogether. The necessity of doing it in some cases is clear from the fact that the subject or substantive term may have a phenomenal import identical with that of the predicate. Thus to apprehension "snow" and "white" have absolutely the same meaning. If we were asked to tell another what we meant by "snow" we should have to distinguish it by its essential appearance to apprehension. If we ever discover or conceive a difference between the subject and predicate concepts it will be either (*a*) in perception and conperception where the cause is thought to be other than the effect, whether different in kind or not, or (*b*) in the case where the subject concept represents a group of qualities other than the one indicated by the predicate, or one thought of as more essential than the predicate. Only in the first of these two instances have we the properly substantive judgment which makes the generalization inductive and subject to the determination of other criteria than mere cognition and *a priori* generalization, except of the hypothetical and formal kind. The second case will come up in a moment for consideration. What I have first to complete is the discussion of those instances, like "Snow is white," in which there is an identity element involved between subject and predicate, which is the basis of the generalization so evident in them. As remarked above, so far as apprehension is concerned, "snow" and "white" are identical, and the experience "white" will always be the evidence of the existence of the subject or substance asserted in perception and conperception, as well as association and inference. Consequently in our *re*presentative conception the subject and predicate will be identical and the substantive idea will be implied only on question as to the full import of the term, and then be only indefinite, as we found in the example of "iron." The effect of this in all cases where the identification of the subject, that is, the discovery of it, depends on the apprehension or *re*presentation, Hume's "copy of impressions," or where the subject term would not be used unless it denoted the predicate "percept" or recept, the generalization is safely *a priori* and necessary, even though it be hypothetical, as it must be. It is apparent, therefore, that the procedure is still dependent upon the application of the principle of identity, so that this would seem to be the one condition of all *a priori* necessary judgments.

In the second class of subject conceptions, mentioned above, we have the most important instances of such as must give trouble to any assertion of *a priori* and necessary generalization. They are important because they represent propositions in a way to make it apparently unnecessary to suppose any valid conceptions of "reality" beyond the phenomenal. In them we may suppose that subject terms require no other meaning for their use in substantive and intensive judgments than as names for facts, events, phenomena, or "experiences," just as the predicates in such propositions do. These subject conceptions may represent facts similar to or diverse from the predicate and correspondingly affect the question of generalization, making it "empirical" or *a priori*, as the case may be. Let me resort to illustration.

In the proposition "gold is yellow" we have a subject concept which we may conceive either as a substance or as a group of qualities. Suppose we say that these properties are extreme malleability, metallic luster, specific gravity of 19.40, and yellow color. Let us call these B, C, D and E. Let me use A for the substantive import of the term. We could then say in terms of the intensive judgment as defined that "A is B"; "A is C"; "A is D"; "A is E." But on the assumption that A is substantive in reality we could not say that it is always and necessarily either B, C, D or E individually or these collectively, except we assume the identity of the conditions which make it these in any given case, since the changes of substance in its modes and the assumed non-identity of the connection between subject and predicate prevents the "inference" or generalization universally and necessarily. But if A is interpreted as identical in import with $BCDE$ the case is different. That is, if instead of having the substantive import A the term for the subject, namely, "gold," mean $BCDE$, then the proposition becomes *a priori* necessary, but tautological, as in every case where the subject is identical absolutely with the predicate in its import.

But the fact is that there are various interpretations of such judgments. First, assuming that the subject is the name for a group of attributes, the proposition escapes a tautological meaning when we suppose that it intends to emphasize certain instances as satisfactorily determinative of what the subject is or means and the predicate appears as a synthetic addition. But this group may represent different attributes in the same sensory field or different attributes in different sensory fields, and this distinction may be a matter of importance in the issue. But assuming the latter first, we should have the subject BCD with the predicate E. Concretely the proposition "Gold is yellow"

would be, "*BCD* is *E*," or better, "Gold," that is, a certain specific gravity, malleability, and metallic lustre, is connected with a yellow color. Now whether that connection can be made *a priori* or not will depend on certain conditions. As specific gravity is a tactual quality, and is considered as the final criterion of "gold," as compared with other "realities," its differential and essential mark, we might suppose that "gold" meant this quality and that the assertion that "All gold is yellow" meant that, when we found this tactual quality present, we might safely infer the presence of its yellowness. Now I must contend that we can do nothing of the sort without "experience." The perception of "gold" considered tactually alone with the specific gravity concerned will permit no generalization whatever, except with reference to this tactual percept and that it should be yellow also is a purely empirical judgment, and no *a priori* anticipation of other sensory qualities, previously to their associated presence through conperception, can be asserted. Consequently this synthetic character of the judgment, as explained, makes all *a priori* necessary generalization a generalization of the connection between the subject and predicate, as long as the proposition is conceived in the manner indicated. This is briefly stated in the fact that, whenever the predicate is the synthetic addition of another sense than the fact or facts represented by the subject, the judgment cannot be *a priori* and necessary but is empirical only. If afterward we agree that the subject shall be attested by the synthetic presence of all these various properties we may then make the subject and predicate identical in meaning by means of definition. But any necessity assumed under these conditions is hypothetical and dependent upon empirical antecedents, and may be said to be only logical. I think the same general treatment can be applied to synthetic judgments with subject and predicate represented in the same sensory "experience." The connection between the attributes involved must be empirical, if they do not embody the principle of identity in some way.

Let me take one more illustration for discussion, the example, "Oranges are yellow." This again is a judgment in which the subject represents a group of attributes, or phenomena, if you like, assuming that we are not taking the term in a substantive sense. Suppose, however, instead of taking the group of qualities into account here we take only one, that of taste, or peculiar sapidity which is supposed to characterize the orange, and with it the supposed yellow color. Now if we mean by the term "orange" this peculiar sapidity, then the predicate is not identical with the subject and the proposition only indi-

cates connection between them. In saying "All oranges are yellow" we simply say that "All sapid things of a given type are also yellow," or "All cases of this supposed sapidity are also associated with the color yellow." Now apart from conperception this synthesis of "yellow" and orange sapidity cannot be treated as necessary. There is no reason apart from conperception for supposing that they would ever be connected at all, and hence we cannot *a priori* generalize this connection for all conditions, other than hypothetically, which would only mean that the repetition of the same facts would give the same judgment, a conception too formal to be of any value in regard to the question at issue, which is the necessary connection between the subject and predicate, when the subject means something different from the predicate. What is actually stated and without qualification as to conditions is that "All oranges (cases of this sapidity) are also yellow," and this means that subject and predicate are not identical but connected. The primary difficulty is in the equivocal import of the copula in all propositions, if we assign it any meaning at all. In intensive propositions conceived as representing the connection between substance and attribute the synthesis is not of *kind* but only of connection, that is, does not imply identity, but relation. But in extensive propositions the synthesis is that of similar realities and the copula expresses identity of some kind. Hence we must say either the copula has no meaning in a sentence or it takes the meaning of conceived identity or relation between subject and predicate. Assuming the latter as the natural tendency of the mind and the actual meaning of half the propositions in use we can discover a source of equivocal import in judgment generally and it will only be when we reckon with the actual intention of the judgment that we can determine the nature of the generalization. When the subject and predicate do not express some kind of identity, no matter whether the judgment be treated as extensive or as the synthesis of phenomena of different kinds, as in cases when the subject is conceived as one phenomenon and the predicate as another, the generalization can never be *a priori* necessary, but must be empirical. We could not infer the yellow color of an "orange" from its sapidity alone and without "experience." We could only generalize the color by making it at least one of the "essential" attributes by which the "orange" should be known as well as by the peculiar sapidity by which we test the correctness of our inference when we *see* the "orange" without tasting it.

But this allusion to "essential" qualities requires us to examine what the term means. It is an equivocal term again, like almost all

terms having any philosophic importance. "Essential" has at least two distinct meanings. They are (1) common qualities, and (2) necessary qualities. Both of these meanings are supposed to describe objects ontologically, that is, their "nature." It should be noticed, however, that the first of these meanings represents matter in which the objects so qualified are of the same kind. This implies that when "essence" denotes common qualities it indicates likeness of kind between the things classified. It therefore represents a conception of the principle of identity as I have defined the term "ontological." The second import of the term, however, that of necessary, does not imply identity between the quality called "necessary" and the subject to which it belongs. It indicates only that the connection between subject and predicate is such that when one of them is found the other will be present, not that they are the same in kind. The first import is the principle of classification, the second is a principle of cognition, The first is "ontological," the second is epistemological, the one *ratio essendi*, and the other the *ratio cognoscendi* of the subject. When "essence" denotes the common qualities it involves the comparison of different (*numero diversa* at least) subjects and their identity in kind. But when it denotes necessary qualities it is merely the test of applying a given term to the cognitive subject of the fact in "experience," which may not be identical with the predicate, though as a subject it may have remained "identical" in time; that is, is and will be the same, or the same in kind with the subject of the same past "experience." The reason for thus distinguishing between the two meanings of the term "essential" is the fact that there may be a slight difference of meaning between "universal" and "necessary," though they are often made convertible with each other, or the "universal" taken as evidence of the "necessary." But as we can conceive a quality as "universal" without regarding it as "necessary," we must in all such cases or possibilities regard the two terms as not exactly synonymous. Thus I may say "All men laugh" and yet not suppose for a moment that the capacity to laugh is a "necessary" quality of "man." Of course, if "necessary" means no more than actually "universal," this last observation will not hold good. But as we are in the habit of distinguishing between certain universal properties as "accidental" and certain others as "essential," for example, regarding vertebrateness as more "essential" than risibility in man, we find it important to distinguish between "essential" as merely common properties and "essential" as "necessary" qualities. What we choose to regard as "necessary" qualities may be, or appear to be, quite arbitrary when

these are not the actually universal qualites, if such a thing ever happens. It is probable, however, that the distinction will always lie within the field of the "universal" qualities and only indicate that part of them which has more *value* for certain purposes than others. This suggests that quite often "necessary" carries with it a teleological import when certain "universal" properties may have only an ontological import and no teleological, and also no gnosiological or epistemological significance in the recognition of a subject. When the "essential" properties are taken as the evidence of the subject, they are taken in that narrow meaning which makes the predicate which they denote convertible with the subject in formal logic. This is not necessarily the case with "universals" merely. "Vertebrateness" may be a "universal" quality of man and also of other beings, so that it may be regarded as equally "essential" to man and certain animals. But there may be "universal" qualities in man that are not found elsewhere and hence are "essential" to man in a more fundamental sense. This is the differential "essence" which will be true of individuals as well as classes or genera. When the "essential" qualities are so conceived they make subject and predicate convertible in formal logic and in "knowledge" without making them identical in kind. In thus considering any quality as "necessary" or "essential" to the subject we only indicate our intention to apply the subject term whenever we find that particular predicated in "experience." That is, we make this particular predicate the *ratio cognoscendi* of the presence of a given subject or subject term, and the constancy of the former will be taken as evidence of the constancy of the latter. Thus, if I assume that a particular kind of yellow shall be treated as the "essential" quality of an "orange," I shall be able to say and think that "All oranges are and must be yellow," because in the conception of "yellow" I have indicated my intention to regard it as the invariable indication of the subject and the property convertible with it logically. It thus becomes like a definition in which subject and predicate are identical for "knowledge," whether they are or not for "reality." This is to say that, though subjects are not identical, the identity of the predicate in time and space, its constancy, and the assumed "necessary" connection or "essentiality" of it as a quality of the subject, guarantee the identity of the subject in time and space. For example, when either a particular sapidity or a distinctive yellow is taken as the criterial quality of a subject to be named "orange," the generalization, "All oranges are of a given sapidity," or "All oranges are yellow," will be necessarily true, not because the subject and its attribute are

identical in kind, but because the temporal identity of the predicate fact or phenomenon, when assumed to be the differential essence of what shall be the subject, involves the same identity of the subject as a cognitive object, if the principle of causality is to have any application at all to phenomena. Assuming the predicate at any time to be the differential essence is only to say that, with or without a reason, a given fact is to be treated as the evidence of a subject which shall be the same as long as the predicate remains the same. If we so desire we may call this an epistemological identity as distinct from an ontological identity which is found only in extensive propositions. This so-called epistemological identity is not one of kind, but only one of relation or constancy of connection, and this suffices to determine the generalization and to make it *a priori* and necessary to the extent of that identity, though it may be only hypothetical, as it depends, not upon the identity of subject and predicate in kind, but upon the identity of the predicate in time and space and the uniformity of causation for its validity. It is conditioned, too, by the assumption of the predicate as the differential essence of the subject, and this affiliates the conception to that of a definition in which the principle of identity, either in the form of unity or similarity, is the determining factor of thought, and where this prevails in any form the generalization may be a necessary one to the same extent.

The real difficulty in such cases, however, is in the fact that in all judgments involving the assumption of the predicate as the differential essence of the subject, where it is the common quality of the class denoted by the subject and the property distinguishing this subject from all others at the same time, the prius in "knowledge" is the predicate, while in all other propositions the prius is the subject. This fact enables us to analyze the problem of generalization as follows.

In all mathematical judgments the subject is intelligible without stating the predicate and the identity between it and any predicate which may be assumed, as it is determined by the very nature of such judgments, is the guarantee of their universal necessity. The propositions can be treated as and are extensive judgments in which the order of thought is subject and then predicate. In definitions the same fact is seen and they are practically and logically the same as mathematical judgments.

In intensive judgments which represent the relation between substance and attribute the possibility of *a priori* necessary generalization is purely conditional. The permanence of substance and the variability of attributes or phenomena make the relation between subject and

predicate an empirical one to "knowledge." The constancy of the subject will be no guarantee for the constancy of the predicate as this may vary indefinitely with the persistence of the same subject. What the predicate will be in properly intensive judgments is never *a priori* determinable from the mere subject conception without specifying the conditions under which the subject conception is viewed. The consequence is that there are several limitations to the generalizations in this type of judgments.

Firstly, the predicate is the prius in "knowledge" and the subject when conceived substantively is only a reflex of the principle of causality and unless the predicate remains identical in space and time no universality and necessity is possible, even though the subject persists, as both must be constant to satisfy the conditions of judgment in the generalization. Hence phenomenal identity has to be assumed to justify the assertion of noumenal identity in the subject. The predicate idea has to be assumed to represent the essential fact in the measure of what the subject shall be and this means that, for the purposes of generalization, the subject is conceptually identical, either as unity or similarity, with the predicate, and the principle of identity becomes the criterion of the generalization. In any other view of it the relation is empirical and not necessary.

Secondly, intensive judgments may be only formally such. The subject term may not be conceived as a substantive but as a phenomenal term. That is, instead of importing substance into the proposition it may mean some representative phenomenon or experiential fact which is not the reflex of causality or ground, and the predicate may stand for some synthetically connected quality. In such cases the subject may be the prius of thought and the relation of the predicate to it an inferred one.

Thus "All oranges (sapid quality) are yellow (visual quality)." The relation here is purely empirical and never necessary as the result of generalization unconditionally from either infero-apprehension or conperception. The synthesis is itself due in many cases to association and "experience."

Thirdly, in all judgments, whether extensive or apparently intensive, if the subject is simply symbolical or representative of the attributive term or phenomenon which it denotes, thus appearing conceptually identical with it, the proposition may be regarded as *a priori* necessary. Otherwise it is not, as some form of "essential" relation has to be assumed to guarantee the right to assert the necessary character of the generalization.

In conclusion we must remark that the fundamental condition of *a priori* necessary generalized judgments will be the identity of the subject in space and time. But there is no guarantee of this identity but in the similar identity of the predicate or phenomenal fact in space and time. If this latter condition is not fulfilled in reality no generalization can be more than hypothetical and formal. In the last analysis we have found that it is always the predicate that represents the prius in "knowledge" and that the subject is the reflex of the principle of causality, since extensive judgments are reducible to intensive in their ultimate interpretation. Now if the predicate fact, phenomenon, or attribute is not the same in all conditions there is no evidence that the subject will be the same, though it actually be so in fact. Now in mathematical judgments the predicate requires for its realization nothing more than space and time. These are severally homogeneous constants, whether as principles of continuity or principles of individuation, and consequently assure the constancy of the concepts which may furnish the predicate of propositions, while the quantitative and qualitative identity (difference in negative judgments) assures the necessary identity between subject and predicate to make the generalized judgment universally necessary, *a priori* necessary both formally and really. But in substantive judgments only "experience" can determine the extent of the constancy, or identity in space and time, of the predicate or phenomenal fact for which the predicate stands, and hence the generalization can only be formally and hypothetically necessary, in so far as they are the immediate extension of judgment on the occasion of perception and conperception, or of apperception. Even then, it is conditioned upon the assumption of "essential" qualities which will determine the empirical import of substantive terms and only indicate that the predicate phenomenon is the *ratio cognoscendi*, not the *ratio essendi* of the subject in the ordinary ontological sense, the necessary connection being contingent upon the constancy of the predicate phenomenon and the uniformity of causation. The consequence is that, outside of mathematical judgments, all generalizations of an *a priori* and necessary kind must be of a formal type and depend upon some form of the principle of identity assumed between subject and predicate. Apart from this condition they are empirical, or their universality is factual and not "necessary." This makes it apparent that the field of *a priori* necessary judgment is a narrow one and that we have yet to explain that of empirical generalization and its relation to the *a priori*. This brings us to the consideration of Scientific Method as a criterion of truth.

III. Scientific Method.

I have discussed three forms of "knowledge," namely, Logic, Immediate Consciousness, and Generalization. The first was said only to transmit certitude, not to originate it. The second indicated the sources of two types of certain "knowledge," one of them presentation or apprehension in which the "knowledge" is not synthetic, and the other Cognition which is synthetic, that is, simultaneously apprehension and the application of a principle of cognition to it relating it to something else than itself, and giving the first form of interpretative conceptions. It was like apprehension, however, limited to the present state of consciousness in the range of its assertion, though adding to apprehension a conception of "objectivity." The third form, generalization, extended judgments so as to universalize them and to assume or assert the necessity of at least some of them. But in many cases this generalization was conditional, and it left out of account those generalizations which could not represent "necessary" truth, but which are conceived as more or less probable, even when associated with a certitude of feeling which could not easily be distinguished from convictions that we do not represent as probable. This class of cognitions or judgments have a modality representing less cohesiveness and inexpugnability of conviction than those associated with absolute certitude and necessity, which were represented in apprehension, cognition and some instances of generalization of the *a priori* kind. This body of "knowledge," if that term can be used to denominate it, whose modality is probability of some kind or degree, is a large one and is very complex in the nature of its genesis and content. It consists of what may be called associational or inferential syntheses and empirical generalizations. Their nature and degree of validity are subject to what is called "scientific method." This conception will have to be examined with some care.

"Science" and "philosophy" in a very common usage, have the two meanings which are defined by the terms "Induction" and "Deduction." This distinction between them came about by the association of their activities with the methods that described them. The Scholastic period, dominated wholly by the philosophy and logic of Aristotle, was introspective and deductive in its methods. The revolt against it, formulated by Bacon, but initiated by many others like Copernicus, Galileo and Kepler, was described as inductive and extrospective. This opposition of their methods resulted in very much determining the distinction between the two fields of reflection, so that the expression "scientific method" came to be synonymous with the

idea of "induction" and opposed to that of "deduction," and as "deduction" was uniformly regarded as a mode of ratiocination, so also was "induction," and "scientific method" is often made interchangeable with this idea. Let us examine briefly how this came to occur.

The whole scholastic movement was, as I have remarked, under the influence of the Logic of Aristotle. Its whole conception of the problem of "knowledge" was determined by this fact. The period had abandoned the study of nature, as I mentioned earlier, because the world in which it was interested was superphysical as well as supersensible, and its organon of truth regarding it was faith until it found it necessary to "prove" its faith. The realization of this need introduced the application of Artistotle's Logic, the study of nature "inductively" not being supposed to be necessary. Its method, therefore, was the syllogism. All "knowledge" certifying faith had thus to be ratiocinatively determined. Deductive logic became the supreme and only organon of truth and "knowledge." The effect was to substitute "reason" or reasoning for faith and authority, but for us the point to be noticed with emphasis is the fact that scholastic conception of method was deductive reasoning. Now it soon became apparent to men like Bacon that this process only proved accepted beliefs and did not originate them. As I have endeavored to show, it only transmitted conviction either from proposition to proposition or from person to person and does not originate it. I remarked also, what is universally admitted by students of logic, that the syllogism cannot prove itself and that, ultimately, the premises have to be determined by some other process than the deductive, and I think, by non-ratiocinative processes altogether. Mill thought the basis of deductive reasoning was inductive. However this may be, it is clear that the deductive syllogism adds no new content to "knowledge" but only systematizes what we have and transmits conviction from the general to the particular case. It was this peculiarity of its function that disgusted Bacon with the Aristotelian logic. He saw clearly enough that it added no new "knowledge," as material content, to our stock of truth. Hence he and his disciples set up "induction" to effect this result. The term had been known and used before, as a mode of reasoning opposed to the "deductive," but this idea had dropped into desuetude, owing to the causes which disinterested mankind in the study of the physical world. But the intellectual habits of the scholastic period were not wholly abandoned, even when the new movement in the revival of "science" found it necessary to introduce a

new method of "knowledge," as Bacon and his followers still regarded their method of discovery a process of ratiocination. The opposition between "reason" and faith tended to produce this effect. When the latter was questioned as to the ultimate source of truth in any matter whatever, it was natural to accept "reason" and the equivocations of this term easily lent their support to the interpretation of the term "induction," which, as representing the study of the physical world, quite naturally suggested opposition to faith as well as to "deduction," and so identified its import with the function of "reason" which was so generally associated with ratiocination. Hence both the older use of the older meaning of the term "induction" and the habits of the age treated that idea as a ratiocinative one. At the same time the exigencies of the problems of new inquiries and discoveries and experiments sufficed to carry into the term all the conditions and assumptions associated with what now passes for "scientific method," which represents much more than mere reasoning. Consequently the term "induction" represents two distinct meanings. The first is that of a mode of ratiocination opposed to "deductive," and the second all those processes which are necessary to the acquisition and verification of new "knowledge." The peculiar characteristic of deduction is that we can never get beyond the premises in what we infer. It is this circumstance that insures certitude in the conclusion when all the formal conditions of the syllogism have been satisfied and the premises are accepted. The fundamental feature of inductive reasoning is that it takes us beyond the premises and at least appears to supply new "knowledge." It is this fact that prevents it from giving assurance of a positive kind to the inference so drawn. But it was the historical restitution of the study of nature that determined the conception of the term for the modern mind and not its formally ratiocinative character, so that it came to mean any process other than introspection and deductive reasoning and so the source of new "knowledge." Consequently there was confusion between its import as a ratiocinative process which was distinct and opposed to deduction and its import as "scientific method" which included deduction.

The best illustration of this confusion is Mill's "Logic." This work is in fact not a treatise on formal logic at all. It is a presentation of scientific method which may include at least a part of logic. Mill seems never to have understood what the science of logic was and what it was intended for. With Bacon and his school he saw clearly enough that deductive method could never determine for us the

laws of nature and that, when the acceptance of the premises was concerned, deduction could not ultimately certify them. Hence he dismisses the subject of deduction with very short shrift in his work, maintaining that the process was wholly subordinate to induction and that its premises were derived from induction. This view will be true or false according to the wider or narrow meaning of the term. If "induction" be synonymous with scientific method which includes all processes of apprehension, cognition and "experience," in other words, all the non-ratiocinative functions, the doctrine is quite acceptable. But if it is limited to the "inductive" ratiocinative process, it can easily be shown to be inadequate. This is apparent from the very nature of the process. As ratiocination, "induction" is coördinate with "deduction" and cannot be supposed to supply the latter's premises. Then again it is noticeable that deductive reasoning transmits certitude from premise to conclusion, while inductive reasoning cannot transmit any such quality to its conclusion. If it supplies the premises of deduction and can support no assured truth the deductive process is incapable of supplying it because it does not receive it from the inductive result. Now Mill tries to prove his case by deductive reasoning which his own theory maintains is not valid except as based upon induction, and as this affords no assured truth he must admit that his argument is worthless. What Mill ought to have seen was, that the premises of both inductive and deductive reasoning were furnished by non-ratiocinative processes altogether and not that one of them was the basis of the other. His actual discussion of scientific method in its use of observation showed that this view of the case was implicit in his system and that it contradicted the attitude taken toward deduction as dependent upon induction, in so far as the reader would understand that he was speaking of a reasoning process. But the fact is that Mill was not clear in his use of the term. He played fast and loose between "induction" as a ratiocinative process and "induction" as scientific method including much more than reasoning.

The function of deduction is to transmit certitude and necessity: the function of induction is to transmit probability. The only reason that it cannot do what deduction does is the fact that its conclusion is not quantitatively involved in the premises as in deduction. There is no "objective" test of the reasoning as in deduction. It is only "subjective." There is identity recognized in the premises, but there is no indication that this identity is inclusive or that it involves the essential qualities of the data concerned. Consequently the inference

is not assured, but will have a probability proportioned to a rather indeterminate set of conditions "objectively" considered. In both deduction and induction there is anticipation of "experience" or the future. The process might be called "*a priori*" in both forms of reasoning, only that the conclusion is not necessary in one of them. The strict import of "*a priori*" is only anticipatory and not necessity. In both cases the reasoning does not represent the phenomenal realization of the facts which the conclusion expresses, but the prospective realization of them when the conditions are fulfilled in "experience." In one it is the necessity of this occurrence and in the other its probability. They forecast the hypothetical certainty or probability that "experience" will be the same for the future as for the present and past. The inference in deduction represents a necessary truth, but not the necessary occurrence of the facts which would involve its phenomenal realization in the future. The inductive inference is probable in the same sense. We might call them both "Anteperception," as indicating that they anticipate "experience, that is, are related to the future in the same way that reapprehension or Memory is related to the past, except that they are in no way categorical in their *factual* implications. But it is apparent that both must derive the character as well as the matter of their premises by non-ratiocinative processes. This fact forces us to base all scientific method upon some other basis than "induction" as a reasoning function. It can have importance only as comprehending processes of acquisition antecedent to all forms of inference. These are the primary processes already discussed and they condition all systematizing functions. Scientific method thus becomes the sum of all processes involved in the acquisition and verification of "knowledge," whether of the necessary or probable sort. It can have no opposition to "deduction" except to that claim that deductive ratiocination is the *only* source of "knowledge." "Deduction" is not the whole, but a part of the whole and scientific method includes it as one of its functions.

There is a fact in the progress of scientific development which conceals this inclusiveness of what is meant by "scientific method" when strictly defined. It is the circumstance that when what is usually understood to be "scientific method" is applied there has already been the acquisition of much "knowledge" which is simply called "experience." In the books "scientific method" is made convertible with the formulation and application of certain rules indicating how we acquire and verify certain inferential truths and little or no stress is laid upon the simple and primary processes which condition the

more complex acquisition of "knowledge," involving all the more elementary functions without our explicit recognition of them.

There is another confusion in the use of the terms "scientific method" which grows out of the antagonisms bred by the controversies between scholastic philosophy with its alleged introspective and "*a priori*" or deductive methods. "Inductive" method in supplanting the "deductive" claimed only to supply "empirical knowledge" and to limit "*a priori* knowledge" to the formal process of the syllogism, if it admitted anything at all in this process. In this way "empirical" came to stand for "inductive" methods and the "*a priori*" for the "deductive" and introspective. This tendency and development of conceptions tacitly omits the consideration of all those processes of certain "knowledge" which are prior to all inferential functions and includes only the possible, probable and conjectural generalizations of "experience," involving suspense of judgment on all assertions beyond this "experience" and tending, in so far as "inductive" excludes certainty and necessity of all kinds, to either interpret the idea of "experience" as more or less dubitative or to define the area of "induction" as representing the conjectural field beyond "experience" and holding conviction in abeyance until some mode of verification could assure the truth. This simply means that the "empiricist" plays fast and loose between the terms "experience" and "induction." Where the former is assumed to give certain "knowledge," the latter has to be confined to probable inferences and generalization beyond the mnemonic type or simple enumeration. But where "induction" is in any way made convertible with "experience," instead of being merely based upon it and proceeding beyond it, and "experience" is assumed to give any certain "knowledge," the term broadens into the larger conception of scientific method and cannot be opposed to "deduction" because it does not, in this wider meaning, limit its import to ratiocinative action. If any clear thinking is to be done in connection with the use of the term "induction," it is apparent from this that the equivocation in its usage must be corrected, as it cannot do service for both "scientific method" and the mere inductive inference which is a very small part of that method. Hence with the choice of terms I shall limit the term "induction" to the inference by that name and employ the expression "scientific method" to denote the complex processes and conditions regulating the procedure known as "science," as distinct from mere introspection of the mind's conceptions. This method can be applied to mental phenomena as well as the physical, and even to introspection. But it has

developed as a method in the investigation of physical phenomena and contrasts with mere introspection and *a priori* speculation in its curtailment of dogmatism and in its emphasis upon experiment. Otherwise it in fact includes introspection and deduction as means respectively of analyzing conceptions and of verifying discovery or systematizing "knowledge."

But there are two important qualifications which are necessary in the definition of "scientific method." The first is that it is as much occupied with belief as with "knowledge." The latter term is generally used in a sufficiently comprehensive sense to include belief, as it is often made convertible with systematization, and belief is this. I shall therefore employ the term often to comprehend all of the convictions which the mind forms by "scientific method," whether necessary or probable. When it is required to distinguish carefully the kind of "knowledge" involved in any particular case I shall specify it. But it must be understood that in the general examination of the functions of "scientific method" I shall have both "knowledge" and belief in mind in the use of the single term, unless otherwise indicated. The second qualification of its scope is that which confines it to the more advanced reflective stage of intellectual development. By this I mean to say that I shall lay no emphasis upon the elementary processes of "knowledge" in the definition of its province. It is true that all the primary functions of "knowledge" are necessarily involved in the application of "scientific method" and must be constantly deferred to in all advanced stages of investigation. But "scientific method," as it characterizes the conscious and reflective or experimental period of inquiry, may be discussed without further allusion to these primary processes than a reference to what has been said in a previous chapter, and in the earlier part of the present chapter which has, so far, been occupied with the criteria of assured "knowledge," and of that type which comes spontaneously and is not necessarily instigated voluntarily and experimentally.

I cannot here discuss the subject of Scientific Method on a large scale or as fully as it needs to be discussed. It would require a large volume for that purpose. It will suffice, so far as I am concerned, to refer to the works of Mill, Sigwart, Whewell, Wundt and others, to indicate the manner in which I should proceed to deal with the subject both in principles and illustrations. I may therefore refer to their works as making it unnecessary to develop the subject anew and as sufficiently acceptable in their conception of method, whatever be thought of their philosophic assumptions, to make elaborate discussion superfluous here.

But before outlining its general principles it is important to notice a few fundamental characteristics which define the main purpose of Scientific Method and so determine its actual applications. While it may be said to determine the conditions of all "knowledge" whatever, it formulates its rules with reference to the more advanced stages of intellectual growth. Hence it appears less as a method of accumulating data than a means of estimating the material of earlier acquisition. The reason for this is quite simple. Its history has been associated with the discovery of new truth rather than the teaching and proof of the old. The scholastic period and its non-progressive methods illustrated the poverty of everything in material knowledge but what is called "scientific method," and hence the emancipation from the inertia of deductive procedure, naturally carried with it the idea that it was not the possession of the existing body of truth that required the attention of science but the acquisition of new "knowledge." Consequently, when any question of evidence or proof for new discoveries was raised the only source for the defendant was to produce a new organon to take the place of the old and this assumed the name of "scientific method" in contrast with the philosophic and introspective speculations of the preceding age. What this influence effects is a tendency to conceive and represent the work of "scientific method" as chiefly occupied with the certification of "experience." This ascribes to it, as its most important function, the application of means for testing and certifying the inferences which arise on the occasion of various "experiences." It thus becomes predominantly a method of determining the degree of certitude or probability with which generalizations can be accepted. The primary interest of man is in generalization, which represents what is true for all space and time. In fact "truth" of any kind has value precisely in proportion to its connotation for universality. We generally mean by it what holds good beyond the present place and moment. Any present event or "experience" which leaves our existence unharmed has no such interest for us as the future possibilities of change may have for the disturbance of our plans and ideals. What our hopes, whether practical, ethical, or religious, require for their realization is some stability in the order of things and some confidence in our judgments. We wish and need to know what the certainties or probabilities of the future will be in order to justify action with reference to the realization of our ideals. Consequently we must know when an inference or an expectation is founded on a reasonable probability that nature will be uniform and that there is some "truth" beyond the phenomenal present, some generalizations on which expectation and hope can be based. The

consequence of this is that "scientific method" seems to be primarily concerned with the results of all those processes which are embodied in our inferences from phenomena. But it is in fact occupied with the determination of the data upon which inferences can be made and which also aid in the verification of inferences when once made. Whatever its relation to primary judgments it thus becomes preëminently occupied with what are called "empirical" generalizations and the efforts to test them or to give them the character of more certain "knowledge."

I may therefore define Scientific Method as the rational mode of procedure by which we regulate the acquisition and verification of conviction, of "knowledge" and belief. I distinguish between acquisition and verification, not because the method of validating them is different, but because they supply different elements of the complex whole in "knowledge." Acquisition is primarily concerned with the discovery of facts and especially with new matter or content, and verification with the certification of the judgments formed on the occasion of acquisition. Acquisition increases content, verification increases conviction. But while the same general principles regulate the procedure in both cases, it may be convenient to treat them as if they were distinct from each other in their relation to method simply to recognize the fact just mentioned. With this established we may proceed to analyze the problem more fully. Such an analysis will involve two questions. The first is the *Processes* characterizing Scientific Method, and the second is the *Principles* of Scientific Method.

I. *Processes of Scientific Method.*

The several processes involved in the determination of "knowledge" as here considered may be enumerated as Observation, Experiment, Classification, Explanation, Hypothesis, and Verification. These, however, I think can be somewhat simplified, and possibly be reduced to three types, if the terms are properly defined, namely, Acquisition, Explanation, and Verification. As they have been enumerated above, it is noticeable that, as processes, they do not necessarily follow each other chronologically, but will be related to each other according to the various contingencies of phenomena. Thus experiment might not be resorted to at all and in individual cases explanation might not depend in any way upon classification. They are consequently elements in the problem that are determined by the exigencies of the case, some of them being the resource in certain emergencies and others in different circumstances. Moreover classification is often regarded as a mode of explanation. Phenomena are

often regarded as intelligible when they are seen to belong to a known class which is presumably explained. Consequently for general purposes I may reduce the processes involved in scientific method to three types, making observation and experiment subdivisions of acquisition, and classification and causification subdivisions of explanation, with hypothesis and verification remaining, the former the means and the latter the proof of explanation.

1. *Acquisition.* — This process represents all those primary agencies by which conceptions and facts are ascertained and which are the phenomena or material for the application of explanation and verification. I need not enter into any elaborate analysis of it after what has been said of the primary and elementary agencies in "knowledge." The part of observation is to embody these functions. What it is and does I shall not define or discuss but leave to the consideration of the reader who can consult the works referred to above. Including apprehension, perception, conperception, apperception, ratiocination, infero-apprehension, consociation, etc., as determinative of the data for investigation, its distinctive character consists in its use of attention and voluntary effort to acquire more than merely casual "experience" would present, and in its implication that the subject observer is a mere spectator of phenomena which he does not himself produce, but which, so far as he is concerned, spontaneously occur in the order of nature. Experiment is the artificial production of phenomena combined with observation. It employs the intervention of the human will and other agencies to produce phenomena which might not spontaneously occur in nature or to repeat and multiply those which may casually occur and thus increases the chance for careful observation. It endeavors to reproduce phenomena with fewer complications than such as might naturally accompany "experience." But both experiment and observation are concerned in the discovery of *facts*, of phenomena or events, which are the data of explanation.

2. *Explanation.* — Briefly defined explanation is simply the conscious application of the categories to facts. Cognition as a primary process of "knowledge" may not represent any consciousness of the principles applied to apprehensions or phenomena. It is, so to speak, instinctive or intuitive, an unanalyzed mode of thought when the process first occurs. But explanation represents the reflective stage of thought when the ideas of kind and of causality have become conscious objects of "knowledge," and so applies them with reference to some *particular* conception of kind or cause as distinct from the general or abstract conception which has the character of an ultimate assumption, repre-

senting a condition of thinking at all, not the "empirical" fact thought. Thus I have already said that perception and conperception gave only the general and undefined fact of a cause or ground and apperception that of similarity without regard to the question whether it is essential or accidental, and so do not specify the kind of cause or the necessary relation of the things apperceived. But after "experience" has taught us to group phenomena together in a definite subject or facts in a class we may consciously use this subject or type for rendering new "knowledge" intelligible. The functional activity of the mind is the same in cognition and explanation, but the content of the two may be different, the one being more simple and the other more complex. Take an example. Cognition may give the conviction that "rain" has a cause or ground for its existence or occurrence, but it may not know what particular thing or fact is that cause. Hence the judgment, "It rains," which is the simplest form of an intensive judgment of cognition. But when we know more about the phenomenon and its connections, all of which are acquired by some process of apprehension, cognition, association and consociation, we may be able to assign the effect to the influence of temperature on atmospheric vapors. We may see a color, say red, and cognition will tell us nothing more than it belongs to a ground or cause, but explanation of a definite kind will say whether it belong to an apple or ball.

Explanation, therefore, while it applies the categories, has a reference to phenomenal relations, the coexistence and sequence of phenomena, which the primary mental processes do not, even though the latter may imply them. It is simply a more advanced and complex stage of mental action, and involves the use of phenomenal facts and groups of them as representatives of the causes and grounds by which the mind makes facts intelligible. It is governed by two principles or categories, the *ratio essendi* and the *ratio fiendi*. The former represents the principles of identity and difference and the latter the principle of causality. The application of the *ratio essendi* or principles of similarity and diversity determines classification, or the unification of phenomena in kind, and the application of the *ratio fiendi* determines causification, as I shall call it, in contrast to mere classification, and means the assignment of causes.

Now explanation may be *known* or *conjectural*. Known explanation will also take two forms, cognition and generalization on the principle of identity, that is *a priori* generalization. I have already discussed this type of explanation. Conjectural explanation is inductive in nature and represents the formation of hypotheses and "empir-

ical" generalizations. Their verification is the last step in the determination of "knowledge," previous steps being hypothetical. Now, as hypothesis is the most important characteristic or agency in what is called "inductive method," and represents the step by which a given explanation of a phenomenon is proposed it will be necessary to examine it somewhat carefully.

3. *Hypothesis.* — An hypothesis is a *supposition*, an inference of the inductive type, and consequently represents what the mind thinks may be a fact or cause not immediately presented in "experience" at the time the hypothesis is formed. To illustrate, take the Copernican system of astronomy. Copernicus observed certain complex relations involved in the Ptolemaic system and conjectured that a simpler theory for the explanation of the apparent motion of the sun around the earth was the motion of the earth around the sun. This inference did not guarantee its own certitude, but had to be consistent with other facts beside the possibility of it in terms of the mind's conception of it. I see drops of water on the grass in the morning and infer that they are due to the influence of cold air on the vapors suspended in the air. I hear a certain kind of noise and infer that it is caused by the approach of a street car. I notice the fall of objects when unsupported in the air and suppose that the gravitation of the earth extends indefinitely in space. All these have to be verified in some way before they become more than hypotheses.

But the fundamental quality of an hypothesis has not been remarked. I have only said that it is an inference of the inductive sort and illustrated the application of the term. We must indicate its essential characteristic in order to define it accurately. I identify it with the process of an inductive inference, as does Whewell, and so must define it as *the superposition of an idea on a fact.* This conception of it represents it as similar in its general conception as the application of a category or principle of judgment to an apprehension or phenomenon. The difference between them is the fact that cognition is "*a priori*," while hypothesis is "empirical." The principles of cognition represent native laws of thought; the principles of hypothesis the use of an "idea" of the "empirical" sort in the same manner as judgment uses a category. The fact in the application of hypothesis will be given in "experience" or observation, and the explanation will be found in the superposition upon it of an "idea" or conception which renders the fact intelligible or indicates its cause. The hypothesis is its interpretation or the assignment of its meaning. It represents *more* than is given in the individual "experience" to be

interpreted or explained. If it were not more than what is given, an inductive inference would not be required, but we should have an apprehension or cognition or generalization of the *a priori* type. To illustrate the definition of it as the superposition of an "idea" on a fact, take Kepler's theory of planetary motion. This theory was that the planets revolve about the sun in elliptical orbits. All that the Copernican theory maintains was that the planets moved about the sun, but it did not definitely determine the nature of this motion. Now, the facts in Kepler's observations were certain determinate positions of the planets in space as observed at different times. He noticed that these positions represented or coincided with points in an ellipse. He therefore simply inferred that an ellipse represented the whole line of the orbit. He found a part of an ellipse in his observations and inferred the rest. That is, he superposed the known "idea" of an ellipse upon the facts which represented points in such a line. This inference was verified by further observations. The Newtonian hypothesis of gravitation was formed in a similar manner. The observed fact was falling objects and the doctrine of terrestrial attraction as determining the motion of these objects. The hypothesis was the extension of this attraction to other and celestial bodies, explaining their elliptical motion. In the Keplerian hypothesis the "idea" superposed was that of an ellipse already known in mathematics, and in the Newtonian hypothesis the "idea" superposed was that of terrestrial attraction and the balance of centrifugal and centripetal forces. Another illustration of hypothesis is Franklin's identification of electricity and lightning. Certain common facts in the phenomena of both were observed and their identity in other respects inferred from these. The "ideas" known in electrical phenomena were simply superposed on the fact of lightning. That is, lightning was interpreted or explained as a form of electricity. The volcanic theory of the earth's center is another instance. The hypothesis of evolution was the application of the "ideas" of continuity and the variation of domestic species under cultivation to the origin of species in general. The same principle will be found in all legitimate hypotheses.

The resemblance of this procedure to the use of the Categories in judgment, as Kant treated it, is quite apparent. Kant's categories were "*a priori*," while the "ideas" which are superposed in the inductive process are "empirical," though I should not object to the use of "*a priori*" in these cases. What I am maintaining is independent of the genesis of the concept applied or superposed. I call attention to the relation of the process to Kant's doctrine to show that

the inductive activity of the mind is fundamentally like the deductive, and differs only in the modality or certitude of the result. In "*a priori*" judgments the modality is certitude or necessity; in "empirical" or inductive judgments it is possibility and probability.

There are, however, certain conditions of legitimate hypothesis. Suppositions cannot be made *ad libitum* and without reference to relevancy. They are subject to certain limitations in their application. Two rules probably suffice to regulate their legitimacy.

(*a*) An hypothesis should not be inconsistent with known facts and causes, but in the attempt to explain new phenomena should be shown to conform to the known in essential characteristics. That is, the new hypothesis must have some continuity with past "knowledge."

To illustrate: Newton's hypothesis of universal gravitation appealed to the admitted attraction of the earth for falling bodies and only extended its operation indefinitely in space. He said of his doctrine, "*hypotheses non fingo.*" Kepler appealed to existing ideas of ellipses, Copernicus to our conceptions of motion and its cause to remove the perplexities of the Ptolemaic system. Darwin appealed to the struggle for existence, domestic variation, and the continuity of different species to justify the theory of evolution. The theory of dew could depend on the law of aqueous distillation. As examples of illegitimate hypotheses take the cases of "materia pinguis," fatty matter, and "lapidifying juice" to account for the traces of fossils in the rocks, instead of using what we know of deposits on the shores of rivers and bays. Also the arbitrary assumption of the Italian philosopher who sought to reconcile the Aristotelian and Platonic theory of the rotundity of heavenly bodies with the supposition of Galileo, proved by observations with the telescope, that the moon had a rough surface, by imagining that the hollow parts were filled with transparent crystal which would permit the same appearances of light and shadow as those which we observe. This was an unnecessary supposition made merely to remain consistent in some absolute sense with the *a priori* assumption that the heavenly bodies were perfectly round because nature tended to perfection.

(*b*) An hypothesis should permit the application of deductive reasoning, or of inferences to consequences which are capable of comparison with the results of observation or verification thereby.

As an illustration of hypotheses which do not conform to this rule we have the old theory of phlogiston as an assumed explanation of the phenomena of heat. It was only another term for the facts themselves. Every legitimate hypothesis must represent some other fact than those

needing explanation and hence a fact from which can be deduced the probability or certainty that consequences not yet observed will follow. Thus if I suppose that the attraction of the moon causes the tides, I can infer that there will be a certain mathematical relation between the moon's mass and the height of the tides. Observation verifies this. Again if we suppose that gravity acts on matter in direct proportion to its mass we may infer that its velocity in falling will be equal in all cases under the same conditions. If the Newtonian hypothesis of gravitation be legitimate we can deduce from it the fact that there will be a certain law of planetary motion, and if this law is not found to be true there will be some difficulty in admitting the Newtonian theorem, unless the anomalous discrepancies can be explained consistently with the main hypothesis. If iridescence be due to the form of the matter in connection with which it occurs and not with the nature of it, then we ought to be able to infer that the phenomenon will be producible by the artificial creation of this condition as found in the mother of pearl. Experiment shows that this is a fact. If the undulatory theory of light be legitimate we should expect to find areas of darkness at the point of the intersection of the rays of light, as silence is found at the intersection of sound waves. In all such cases the fact or cause which serves as the starting point of the hypothesis does more than name the fact to be explained. It names other facts with certain known implications, so that when we apply the hypothesis to the new phenomena we should be able to test the meaning of our application by inferring that the theory is more than the new facts and involved consequences possibly not observed at the discovery of the new phenomena.

It must be remembered, however, that this conformity of hypotheses to known facts and to the requirement of deductive reasoning may not prove the hypothesis to be true. It only establishes its right to recognition, and verification may have to come in to complete its validity.

4. *Verification.* — The verification of hypotheses is their "proof," or is the process of testing their validity. When they are first made, unless the conditions under which they are proposed at the same time satisfy the demands of assured truth, they are held more or less in abeyance and suspense of judgment. They are simply probable or legitimately possible to the extent of being tolerable. The desire of the mind is to see them "proved." Consequently in various ways we seek the evidence of their validity in facts that increase the tenacity of conviction. The facts which verify an hypothesis may be of the same general kind as those which suggest it, and only serve to indicate that

uniformity of nature which helps to sustain belief in the processes which explain the phenomena suggesting a theory. It should be noticed, however, that verification does not add, or does not require to add, to the material content of "knowledge" in the process of proving hypotheses. Its chief function is to affect the *modality* of judgments already formed and not to suggest them. It is a process for increasing conviction, not for producing new matter of truth. Hence it is an *evidential*, not an explanatory function of belief. It seeks to establish conviction, not *matter* of consciousness. We found that explanation involved the *ratio essendi* and the *ratio fiendi* of phenomena and things, that is, content of belief and "knowledge." Now verification is based upon the *ratio cognoscendi*, of "knowledge" and belief. It represents the evidential criteria which increase conviction in cases where it is but provisional to start with. The facts and conditions may be capable of suggesting either the hypotheses confirmed or new ones to be further tested, but used for verification they only increase the tenacity and cohesiveness of belief in the suppositions otherwise suggested. Consequently in thus attesting hypotheses or supplying them with the *ratio cognoscendi*, verification simply acts as a criterion of truth, and may reach all the way to "proof," though its purpose is satisfied if it simply increases the probability of the supposition with which it starts.

The various processes of verification are Observation, Experiment, Deduction, and Induction. These, of course, are only the continuation of the processes which may give rise to hypothesis, except that they are expected to supply additional facts in support of the inference first suggested. They are all based upon the Principles of Scientific Method still to be considered, and may be illustrated briefly in the following manner.

When Newton first thought of the law of universal gravitation, he was not content with its power to explain the single phenomenon which suggested it, but he saw that certain other facts must follow from it or be associated with it. He therefore set about a mathematical calculation to see if the result coincided with what ought to occur in the case and seeing that it did not, he gave up his theory until new data, some ten years latter, were discovered regarding the true distance of the moon from the earth. He then resumed his calculations and found that the result coincided with his hypothesis. He regarded this as a verification of it. When the hypothesis that all gases are compressible into liquids or solids was advanced, it was at least a partial verification of it to have succeeded in compressing hydrogen into a

a liquid under a low temperature and high pressure. When the Copernican theory of planetary motion around the sun was proposed and the explanation of the phases of the moon was accepted, it was argued that Mercury and Venus ought to exhibit similar phases. This was admitted by the advocates of the Ptolemaic theory even and stated as contrary to actual observation. But when Galileo turned his telescope upon them the inference was verified by the discovery of these phases. An experiment of Sir David Brewster's showed that iridescence was due to the form and not to the nature of the substance of mother of pearl. He took a wax impression of mother of pearl and produced the same effect as in the substance of pearl.

These illustrations suffice to show what the function of verification is in the determination of conviction in connection with hypotheses. Before further discussion of the question it remains to consider the principles of scientific method which are operative throughout the whole process of acquisition and verification. When these have been considered we may ascertain the nature of inductive generalizations and their relation to those which seem to have a modality much more certain than the "empirical" truths of induction, though scientific method may include the means of determining certitude and necessity.

II. *Principles of Scientific Method.*

I have discussed the various processes by which "knowledge" and belief are formed in the application of scientific method and it now remains to examine the principles upon which it proceeds. These principles I shall treat as the *ratio cognoscendi* of scientific "knowledge" and more particularly manifest in the process of verification, though they also condition the legitimacy of hypothesis as well. They are not constitutive of the nature of judgments as they are to be employed, but criterial of their legitimacy. They represent rules to which scientific investigation of all kinds must conform, and by "scientific" I mean every investigation into the truth of affirmations and negations whether in the field of philosophy or the so-called "empirical" sciences. Mill describes them as the "Method of Agreement," the "Method of Difference," the "Method of Concomitant Variations," the "Method of Joint Agreement and Difference," and the "Method of Residues." I shall reduce these five methods to two as serving our general purpose. Thus the "Method of Concomitant Variations" is only a form of the "Method of Agreement" in that two different phenomena are simply described as agreeing in their variations, and the "Method of Joint Agreement and Difference" is only a combination of both of the funda-

mental principles while that of "Residues" is one of "Difference" pure and simple, so named only because of its special application to residual phenomena. But in reducing them to two types of principles I shall slightly alter the phraseology. I shall call them the "Principle of Coincidence" and the "Principle of Isolation." The former is the same as that of "Agreement" and the latter the same as that of "Difference." The slight change of phraseology is designed to avoid all implications of the categories of Identity and Difference, as explained in earlier discussions. There is undoubtedly a close relation between them and I should be quite willing to assume and admit that the principles are the same as in the exercises of judgment, but I wish to use them here as *ratio cognoscendi*, as evidential criteria, and not as *ratio essendi* and *ratio fiendi* or as constitutive elements of the meaning of judgment. The principles of coincidence and isolation represent the conditions on which the formation and verification of hypotheses can take place and so represent criteria of legitimacy, not the nature of the subject matter of "knowledge" and belief. With this explanation of the meaning of the changed phraseology I may leave the conception of the facts and the nature of the "Methods" to the reader to actually be identified with the principles of Mill and other writers.

1. *Principle of Coincidence or Agreement.* — The Canon of Coincidence or Agreement may be defined as the principle which determines the probability of a given identity or connection on the ground of the actual frequency of certain resemblances or coincidences under varying conditions. Or more simply still, the coincidence or agreement of two phenomena in respect of the qualities producing them or in respect of the connection in which they occur, is a criterion of their cause, whether material or efficient.

To illustrate: If I discover that rainfall is frequently consociated with a certain type of cloud, I may infer that this type of cloud is its cause or an index of what the conditions are that cause the rainfall. The more frequently that this coincidence occurs the more general will be the judgment so passed. If I find that certain flowers turn in the dark toward the light, I may infer that the light is the cause. If I find that the roots of trees grow in greater quantities and at greater length toward water courses, I may infer that the water course is the cause of the phenomenon. If I discover certain organic resemblances between species, or perhaps I should say individuals, I may infer that they belong to the same genus. If two elements agree in a quality that puts them in a given class, we may infer that other qualities of that class will be found, if these other qualities are regarded as necessary to the type.

If I find consciousness always associated with an organism and do not find it apart from such, I must infer that it is a function of this organism. I must interpret it as I do other functions or properties so found. If I frequently find "hard times" associated with failure of crops, I may infer that there is a causal connection between the two and expect the fact always to occur.

The cogency of the inference is greatly strengthened if the coincidence is connected with other facts which we would naturally expect to be related to the phenomena observed. Thus if we know that trees use moisture in the process of growth, it renders all the more probable the supposition that the water courses affect the growth of their roots toward them. We thus find that the probability or certainty of our inference and generalization will increase in proportion to the coincidences involved in the phenomena associated and consociated.

2. *Principle of Isolation, or Difference.* — The Canon of Isolation may be defined as the principle which determines the probability or certainty of an inference or generalization by the extent to which phenomena and their causes are separated from the connections which would make any other cause possible in the case. If two phenomena are constantly isolated together from other groups which remain invariable without the accompaniment of the two under consideration, the separated phenomena may be taken as necessarily connected in the relation of cause and effect, the antecedent being the cause and the consequent being the effect.

To illustrate: It was inferred from the nature of gravity that it acted equally on all bodies and that weight had no influence to modify the motion of falling bodies. This supposition seemed to be contradicted by the fact that bodies like lead and feathers did not fall with the same velocities. But when the lead and feathers are put in a receiver and the air exhausted from it they are found to fall with equal velocity through equal spaces in equal times. The isolation of the bodies from the retarding influence of the air, which can act with more force on the feathers than the lead because of the greater surface exposed in proportion to specific gravity, went to show that there can be but one cause of the effect. The inference is conclusive in proportion to the certitude that the conditions represent this isolation of phenomenon and cause. Again, if I actually isolate a substance from its association with another element which has prevented my discovery of it, I have the right to assert the existence of a new element. Otherwise it might be an instance of allotropism or isomerism. If we isolate an individual consciousness from the organism with which it has been

naturally associated, we prove its independent existence; that is, we prove that it is not a function solely of the organism, but is the function of some other subject. The method of coincidence favors the supposition that consciousness is a function of the organism, but the method of isolation would prove beyond a doubt that it was not so. To quote Jevons: "Thus we can clearly prove that friction is *one* cause of heat, because when two sticks are rubbed together they become heated; when not rubbed together they do not become heated. Sir Humphrey Davy showed that even two pieces of ice when rubbed together in a vacuum produce heat, as shown by their melting, and thus completely demonstrate that the friction is the source and cause of the heat. We prove that air is the cause of sound being communicated to our ears by striking a bell in the receiver of an air pump, as Hawksbee first did in 1715, and then observing when the receiver is full of air we hear the bell; when it contains little or no air we do not hear the bell. We learn that sodium, or any of its compounds, produces a spectrum having a bright yellow double line, by noticing that there is no such line in the spectrum of light when sodium is not present, but that if the smallest quantity of sodium be thrown into the flame or other source of light, the bright yellow line instantly appears." All these cases are instances of the principle of isolation.

It is possible to maintain that the principles of coincidence and isolation may be coöperative in many instances in which our convictions are formed and verified. These instances would be such as those in which coincidence suggests what isolation proves. But it will not be necessary to more than admit this fact as a possible one, as I am not here developing a guide for the practical investigator in all fields of investigation, but only indicating the general principles which regulate convictions in any case and so suggest the primary canons of epistemology, when it comes to legitimizing and verifying the judgments and generalizations which define belief and "knowledge." Some judgments have so little probability when first suggested that the mind seeks some way to decide which side of the issue its allegiance may support. In mathematics there is no difficulty in determining what is true and what is false. But in the inductive sciences and in all those generalizations which represent various degrees of probability, it is sought to investigate the integrity of statements and to confirm them in the various ways intimated. The reason for this is that probability has degrees; certitude and necessity have not. Probability denotes a modality extending from an incipient belief of the merely possible sort to convictions which are so tenacious that doubt of

them seems difficult. Within this range of probabilities there is a great need of such criteria as I have defined and illustrated in the principles of coincidence and isolation. They are applied to test the validity of a judgment and its extent, and it will be acceptable in proportion to the constancy with which the phenomena to be explained occur in the same or different connections. The conviction may have but a slight probability in its initial stage and then reach proof in its final stage, which will occur in the application of the principle of isolation. The whole process will indicate the extent to which assertions can be made universal or necessary, or not. In all stages intermediate between the primary acts of the mind and the application of the principle of isolation, which is practically the realization of the conditions defining the primary, the generalizations will be more or less contingent and "empirical." It is the business of investigation, analysis, and the application of scientific method to determine the measure of certitude and probability accruing to judgments thus related, and it succeeds in proportion to our ability to use the principles which I have defined and illustrated.

The analysis of scientific method was undertaken in order to determine the character of certain forms of judgment which were not self-evident and whose universality and necessity were subject to doubt. Thus we found in such propositions as $2 + 2$ are 4 statements that were accepted as certain and necessarily true, but in such statements as "All oranges are yellow," we had judgments which might not seem to be necessarily true. We could easily conceive that "oranges" might be white or red. Hence it would appear that the only truth assignable to such propositions would be "empirical," that is, mnemonically true, "universal" within the limits of "experience" and not necessarily so for future "experience." Hence it became necessary to examine the processes and principles which determine such propositions as distinct from those of mathematics. They were found to be more or less contingent and the question arises why they are so. The general answer was, of course, that in mathematics we were dealing with a *static* world, and in physics with a *dynamic* world, a system of phenomenal changes. The contingency of judgment in the latter world is just as certain as its necessity in the former, and yet there were found a system of judgments in the physical or substantive world with quite as cohesive a character in the relation between subject and predicate apparently is in the static world. The question was to determine why this is the case. The answer is that scientific method shows a measure of constancy even in the world of change

and in that proportion we can affix cohesiveness to judgments representing the relations of phenomena.

In order to understand the use of the principles of scientific method in the study of judgments it may be well to review their nature and types somewhat briefly. We had originally two kinds of judgment, intensive and extensive. The former are always substantive and the latter may be either substantive or mathematical. Universality and necessity could be predicated of mathematical propositions, owing to the quantitative and qualitative identity of subject and predicate. Their validity is never in question. But we found some confusion in the problem as affected by intensive judgments. In their pure form as defined, their universality is not *a priori*. That is we cannot say, except hypothetically, assuming that conditions remain the same, that the union of subject and predicate holds good for all time and space, which is what an *a priori* and necessary judgment must do. We found it necessary, therefore, to distinguish between the *formal* and the *real* intensive judgment. The formal intensive judgment exhibits the same form of expression as the real, but the mind may substitute the idea of an attribute for that of substance in thinking of the subject, so that we have an association of two attributes or phenomena in the proposition instead of an association of a substance and attribute. This tendency gives rise to the opportunity for introducing the principle of identity into the real meaning of propositions that are apparently regulated by the principle of causality. The introduction of identity into them may affect the generalization to an extent that renders some sort of forecasting of the future possible. In what sense this is possible I shall examine in a moment. I shall first repeat the considerations which prevent the application of *a priori* universality and necessity to pure intensive judgments. This we found to be the noumenal and persistent nature of the subject and the phenomenal and changeable nature of the predicate. We found that in the substantive world we are dealing with a system of change, except that substance itself is supposed to be permanent and constant. Its attributes change. This fact prevents us from asserting the necessary constancy of any attribute in space and time though the substantive subject be the same, or the same in kind. But as we do not always think of the substantive import of our subject terms, taking instead its attributive or phenomenal implication as its equivalent, we find that we may be representing a relation between phenomena not noticeable in the merely formal character of the intensive judgment, and this relation will be one of identity or difference according to circum-

stances. Consequently no *a priori* generalization regarding the class can be made until we determine when the relation is one of identity and when it is one of difference. The process by which this is done is not easily defined. But it brings out some fundamental considerations in what passes for the problem of "knowledge." I must examine these with the qualifications which they apply to the question under review.

The first thing to observe is that definitions are not existential judgments, but only an explication of the meaning of terms. Whatever *a priori* universality they obtain is due to the identity of subject and predicate and the necessity that the meaning of language shall be uniform whether nature is so or not. The definition does not imply either that the thing defined exists or that, if it exists, it shall continue, but only that when it exists the term can apply to it. Now this necessity of the fixity of meaning for terms is important for all communication of "knowledge" or ideas. Unless a term shall have a constant meaning it is useless to indicate what are the objects of thought and discussion. Consequently our concepts must have stability of meaning in terms of the language which denominates them, whether nature has that stability or not. Nature repeats herself enough for us to insist upon the constancy of our conceptions amid the changes of facts and so propositions embodying definitions may be *a priori* and necessary without implying any existential facts corresponding to them at all times and places. A somewhat similar status obtains for certain other propositions.

Now in spite of the fact that a subject in an apparently intensive judgment may have a substantive import, in common parlance and discussion it does not seem to have this exclusive meaning. We noted that in intensive judgments of the pure and real form the predicate, as a phenomenal fact of "experience," is the *ratio cognoscendi* of the subject not its *ratio essendi* (ontological, material cause, identity), while the subject may be viewed as the *ratio fiendi* of the predicate, the *ordo cognitionis* being the reverse of *ordo naturæ*. But the very nature of this relation between the phenomenal predicate and its subject (numerical identity, *numero eadem*) makes the abstract subject of cognition convertible with the predicate in so far as conception or representation is concerned, and when this is once done the word which names the subject is conceived more or less in terms of the predicate. This is to say, that the predicate is taken to be its essential quality which shall always be our criterion of the presence of the subject in experience. Whatever substantive meaning the term may have

to give the proposition a really or apparently synthetic character the subject may denote the predicate by implication and be conceived in its terms. We get such judgments as "snow is white" from this process, and when we thus decide to take a certain quality of whiteness as the evidence of the presence of the subject, and as the attribute which we treat as essential to it, we get a proposition which is like a definition in respect to its universality and necessity, but differs from a definition only in the non-distribution of the predicate. But when a term has once come to be convertible in conception with the phenomenon which is the function or quality of the subject or substance also named by the term the real character of an intensive judgment may be lost and the synthesis may represent the connection between two phenomena or attributes. Thus if taste represent the essential quality of oranges a yellow color may not be a necessary consequence of the presence of this particular taste. It may be a fact that "all oranges are yellow," but it may not be a necessary fact that this synthesis should exist. Before we should be entitled to assert that the yellow color was a necessary attribute of oranges we should have to decide that we should not use the term "orange" unless both attributes were simultaneously present. This is simply fixing on the conditions under which the term shall be used and would make it necessary to employ some other term for objects in which the taste was the same as that of "oranges" while the color was different. There is no *a priori* reason for the synthesis of these two qualities. It is "empirical." The convenience of practical life has made it useful to treat the two attributes together, so that the presence of a certain yellow color may be the basis of an inference to a certain taste, and the presence of a certain taste may be the basis for an inference to a certain color, the color being the equivalent of "orange" for sight and its sapidity the equivalent for taste. The employment of both qualities for determining the meaning of the term only indicates the desire to prevent the term from becoming equivocal and to fix its import so that whatever universality it may have this characteristic may not conflict any more than is possible with actual "experience." But it will be apparent that the whole procedure is "empirical." The whole extent of the generalization is dependent upon the amount of coincidence in "experience" between a given taste and a given color, and it can never take the form of necessity as an existential judgment, unless we prove that the cause of the color is the same as that for the taste and that their connection is inevitable from the chemical combinations required to produce the orange. It is possible that the majority of our apparently intensive judg-

ments are precisely like the one just discussed. Wherever they are so, it is evident that the measure of their generality and of the cohesiveness of the relation between subject and predicate is solely determinable by "experience" and dependent upon the principles of coincidence and isolation for the measure of certitude which the synthesis shall possess. The frequency of their association and consociation in "experience," other things varying, creates the probability of their relation in the future, but will not make it necessary until the principle of isolation has been satisfied. The consequence is that there is nothing in the form of propositions that will indicate when their prediction of the future is certain, except in mathematical propositions and definitions, and such as interpret the meaning of the subject by the conception of the predicate, that is, are analytical in Kant's definition of them. The modality of all others is problematical.

III. *Summary of Results.*

We have found that the problem of "knowledge" starts with a demand for certitude and necessity in at least some of our judgments and is finally forced to distinguish between what is probable and what is necessary as a condition of preserving any claims at all. It was easy enough to show that there were some things of which we are certain, but it too often happens that the things of which we are certain are not the things for which certitude is sought, and hence the quest for data and proof of beliefs which seem too important to remain in a merely problematical condition. "Knowledge" of the present moment gave no difficulty. All are and were agreed upon that. It is "knowledge" of the future that represents the important quest. Universal and necessary truth claims to determine what is true for the future as well as the past and present. Apprehension and memory decide the past and present and the question is whether there is any faculty or condition under which propositions valid for the future can be asserted. The exigencies of the whole question require us to distinguish between the communication and the acquisition, and between the cognitive acquisition and the generalization, of "knowledge." Now we found that it is only in the process of generalization that any pretense of a "knowledge" of the future is possible. All others are occupied with present facts. But man thinks before and after. His practical and ethical interests require him to know at least some of the probabilities of the future in order that he may have a better chance to survive in the struggle for existence. This is very simply illustrated in the relation between the senses of sight and touch. Sight is an anticipatory

sense and touch is the protective sense. What we see enables us to anticipate the risks and dangers of certain tactual experiences and this anticipation is only forecasting a future sensation. Man's power of survival and avoidance of danger, his power of self-preservation, is largely dependent upon this anticipation of the future. Hence his desire to "know" it, if possible. Only when he gambles or patronizes the lottery does he satisfy himself with mere chance in his conduct. In more serious financial business and in his rational conduct he is less content with risk. He demands a mortgage or other security for his investment, and this presupposes some stability in the course of nature or confidence in the honesty, which is only another name for the stability of character, in his fellow man. In his religious life he wants to know what confidence he may have in the order of the cosmos which plants in him ideals demanding an extension beyond the present order of things for their realization. In all his affairs, whether domestic or political, economic or social, moral or æsthetic, material or spiritual, he demands some way of counting on the future as a condition of making any rational plans or ideals practical or obligatory. If the seasons are irregular and their return cannot be relied upon I refuse to plant my crops. We want some reasonable hope and expectation of realizing our ideals if they are to have any validity or imperativeness at all. This hope must assume some probability or certainty about the course of nature in some respects at least. To form a conception of this future man must generalize from his "experience" or his cognitions. The ability to do so depends wholly upon what is given in that "experience" or cognition. In the worlds of space and time we find the static conditions which enable us to entertain at least some universal and necessary truths, whether we consider them as formal or material. In the physical or substantive world the conditions are different. It is preëminently a dynamic world, a world of change in the phenomenal modes which supply the predicates of all propositions, whatever we may think of the changeless character of the subject. There is no guarantee whatever of any universal and necessary truth in this world of perpetual change, unless it be hypothetical. This is only to say that we cannot "*a priori*" forecast the future in the physical world in any material way. Of course observation shows a relatively uniform and recurrent law in the happening of phenomena, so that in spite of the fact that "nature" is governed by a law of change, there are unities, consistencies, uniformities, whatever their conditions, that offer a basis for reasonable expectation of the future, and though we cannot draw any hard and fast line between

the certain and the probable in concrete cases the general field of the two kinds of modality in judgment are fairly well determinable. In all cases, however, the law is "empirical," that is, based upon observation of the actual uniformities of phenomena, and the future has a probability in proportion to the amount of uniformity or coincidence involved. Where phenomena exhibit a law of recurrence there is some constancy of the conditions which make this possible and generalization becomes a safe adventure. But in all cases, whether in the mathematical or the material world, the generalization has its validity determined by the extent to which it embodies the law of identity and difference. In the mathematical world of space and time the homogeneity of these data, their unchangeableness, is a guarantee for the "*a priori*" universality and necessity of the judgments based upon them. In the material world, except in so far as it participates in space and time qualities, can its phenomena be predicted at all with certainty. Whatever probabilities generalization may have in this world will depend upon "empirical" observation of actual uniformities of coexistence and sequence. The assured generalization in these circumstances will be mnemonic or that of simple enumeration, but is not previsionary or predictive beyond a certain degree of probability, as measured by the extent to which the principle of identity has been realized.

In the mental world the same law holds good, except the ideal world of formal concepts which have no objective existential import apart from the occasion of "experience." Their universality is a necessity for the communication of ideas, not for the expression of existing facts in all places and times. The universality and necessity assumed in any of these formal judgments depends upon the assumption that the subject has been conceptually identical with the predicate in some respect to make its meaning definite at all. This condition makes such judgments a mere means for making facts intelligible when they occur, not of assuring their recurrence. They do not predict the future, but only what future events will be, if they occur at all. In fact this may even be said of all judgments of the universal and necessary kind, including the mathematical. I do not find it necessary to exempt even these from this law or condition. But this law is certainly clearer in all these judgments which condition their universality upon some real or apparent identification of subject and predicate, and in the physical world this often appears arbitrary. For instance, at one time the judgment "All metals have a specific gravity greater than water" was taken as a settled truth, but after potassium, sodium,

and lithium were discovered and placed among the metals, as they will float on water, the original generalization did not hold. But this was because the *ratio cognoscendi* of what a "metal" is was changed. When that proposition asserting a specific gravity greater than water was held to be true it was on the condition that this specific gravity was the test of the application of the term and any insistence upon the retention of this test would exclude the new "metals" from the class to be denominated by that term. It was only the selection of a new criterion or characteristic for classification that changed the form of statement, though it did not alter the real facts of nature. But we see in the incident that whatever universality and necessity we get in physical judgments it must depend upon a real or assumed identity between subject and predicate terms, even when the "realities" expressed by the term are not in fact identical. The identity may be only uniformity of implication and that suffices to give stability of meaning to terms and conceptions, which is necessary to interpret the facts of nature when they occur, not to predetermine their occurrence.

CHAPTER VIII.

THE PERCEPTION OF SPACE AND OBJECTIVITY.

In defining and discussing the nature of sensation, I called attention to the difficulty of distinguishing between sensation and apprehension, owing to the fact that they are so closely associated in the same complex state of consciousness. Indeed, I went so far as to recognize the fact that we might consider them as terms denoting the same event spoken of in different relations, apprehension being the name for the mental reaction viewed as an act of "knowledge" and sensation as the name for the same reaction as the result of stimulus. It may not be necessary to conceive the terms as denoting exactly the same individual facts, though the occasion of their occurrence seems to be a single one. This is especially true if we are likely, in doing so, to imply that the state concerned is not a complex one. It is quite possible to conceive the mental reaction against stimulus a complex of at least two functions, which we may call sensation and apprehension and then, in later "experience," add to this complex the various functions of cognition. But whether simple or complex, it is not necessary to reconsider these questions further than to remark that all psychological criticism and discussion centering about the primary functions of intelligence soon have to meet the question how we can perceive an external world. There was no trouble in the early history of speculation in ascribing this to "sensation." But as time went on philosophy began to define and describe "sensation" as purely "subjective," the mind's affair which did not have the meaning for external reality which it was once supposed to have, that reality had either to be given up or ascribed to some other function, such as "apprehension," "perception," "intuition," or judgment. This new way of presenting the case conceded that "sensation" was an event in the organism and without any "perceptive" reference to external reality, so that this presumably desired result had to be obtained by naming a special function for the purpose, especially wherever idealistic solipsism was not acceptable. Whenever the puzzling question as to how we could "know" external reality was raised, if "sensation" were subjective, the common sense philosopher had only to name "intuition" or "perception" as the process. But such an answer has not always proved satisfactory and the question

still persists wherever we are impressed with the "relative," "phenomenal" or subjective nature of "experience."

In discussing the process of synthetic "knowledge" or Cognition, I endeavored to present processes that justified a belief in objectivity, an external world, without conditioning it upon a theory of space. I relied upon the principle of causality for the evidence of an external world, using the idea, however, to denote externality to the phenomena to be accounted for rather than the externality of space intuitions. I come now to discuss the same general problem in connection with the "perception" of space, which I think the question best calculated to consider in connection with the "perceptive" process in relation to sensation. It seems possible to condition our "knowledge" of external reality upon two processes instead of one, namely, the categories of space and causality combined. There can be no doubt that space appears in our ordinary conception as the chief factor, but I think that the total of our judgment will be found to comprehend both, causality as determining the indefinite notion of otherness than a given fact and space the definite sensory datum for its clearness. I do not mean that causality can give anything spatial, but that the complex conception of objectivity is associated with both space and cause as determinative of it. In the physical universe objectivity is usually spatial as well as causal, and it is space that indicates the plurality of the elements constituting the known cosmos when their causal relation with each other reveals their unity of action and with the mind their existence. But however this may be, a position not necessary to affirm here, the place which the idea of space has in the determination of externality makes it important to examine our perception of it as a step in the analysis of "knowledge" and in the interpretation of nature. The concrete form which externality takes in our conceptions is represented by some spatial relation and as the determination of this is closely associated with sensation and "perception" or apprehension, the process of reaching externality and objectivity can be best studied in those "phenomena" of experience which can be analyzed into their elements and their function in the whole determined accordingly. By this I mean that what "perception" really does in connection with objectivity can be studied in connection with space "intuitions" more effectively than in any other "phenomena."

There are two closely related problems in space "perception" historically considered. The first is the *genesis* and the second the *nature* of the conception of space. The theories of genesis divided into "empiricism" and "nativism," and those of its nature

into the realistic or objective and the idealistic or subjective nature of space.

It was the doctrine of Kant that gave importance to the problem of space "perception." Had it not been for that philosopher's paradoxical assertions about the nature of space and its "perception" we should have probably taken this datum of "knowledge" as a dogmatic object of faith much as did the Cartesians and Lockians. Previous to Kant no special theory of "knowledge" or metaphysics depended so absolutely upon any particular doctrine of space and its "perception," or drew such consequences from them as did Kant. This theory consisted in a double qualification of its nature. He described it as a "form of intuition" and qualified this as *a priori* and subjective. Exactly what he meant by this will be the subject of further inquiry again, but it pointed to idealistic associations as the development of his philosophy has shown. In the Æsthetic Kant admitted that space was also objective as well as subjective, and in the Analytic he seems to regard it as wholly subjective. But leaving real or apparent inconsistencies aside, the spirit of his position in both looks toward a conception of space which has always appeared as paradoxical to common sense, namely, that it was an ideal and subjective product of the mind. That it was a "native" or "intuitive perception" was the generally accepted doctrine after Descartes, but no one had attempted to describe this "native perception" as subjective until Kant ventured upon the assertion. The consequent idealization of "knowledge" and "reality," whatever such idealization meant, had so many revolutionary implications in philosophic thought that it created much offence in the ranks of common sense and science. Common sense did not like the idealism founded upon it and the scientist did not like the doctrine of the "*a priori*" which appeared so antagonistic to his theory of "experience." With the one the reduction of everything to states of mind was absurd and with the other induction and experience were the sources of all "knowledge." Both schools of thought conceived it their interest to attack the Kantian doctrine of idealism, assumed to be as absurd to the scientist as to common sense, by depriving it of its foundation, which as I have said, Kant had placed in the *a priori* and ideal nature of space and time. The scientific man attacked its *a priori* nature and the common sense philosopher its ideality. Between the two it was hoped to eradicate idealism and *a priorism*. The consequence was a vast literature and direct experimentation to determine the issues raised by the alleged significance of the Kantian doctrine. The fact, however, was that the Kantian system was less dangerous to science and

less antagonistic to the existing philosophy as a whole than was supposed. The real conflict between science and transcendentalism lay in their associations. The one was liberal and the other conservative in its affiliations. Science had attached itself to progress and revolutionary tendencies. Transcendentalism, whatever its sceptical impulses, had easily adjusted itself to the conservative institutions of society resisting change and the dissolution of tradition. As the whole apparently revolutionary system was consciously made to depend upon the *a priori* and subjective nature of space and time, the scientific mind resolved to remove this keystone to the arch of the structure and consequently directed his experimental investigations to proving that space "perception" was "empirical," assuming that he had not to discuss any of the larger philosophic problems ostensibly founded upon the Kantian theory of space and time. The common sense philosopher, with the same object in view and admitting the *a priori* or "intuitive" nature of space and time, attacked their ideality.

The outcome, however, has not been what was expected. It was thought that the refutation of the *a priori* "perception" of space would disqualify the idealism founded upon that doctrine, but, as the Nemesis of scepticism would have it, Wundt, an empiricist in the doctrine of space "perception," definitely claims that this view affords a better basis for the Kantian idealism than Kant's own conception of its condition. In fact the solution of the problem has been found not to be so easy as was at first imagined. The complexities and equivocations involved in the conception of space suffice to take the dogmatism out of both theories of its genesis, and now no one cares whether space "perception" is "empirical" or "*a priori*." No such philosophic consequences for its nativity as Kant claimed for it are so uncompromisingly recognized, and "*a priori*" has come to imply its subjectivity as much as anything else. The controversy has changed from its genesis to its nature, whatever its genesis. Hence the issue has completely shifted from the psychogonical to the epistemological problem which lies on the boundaries of metaphysical speculation.

A few remarks may be necessary at the outset of our study of this question in order to indicate what we shall have to face in the conclusion. They pertain to the complexity of the problem which is much greater than Kant ever supposed. If we could assume that the "perception" of space involved no complexity of function and judgment and if we could assume that the conception of it involved no definition and analysis prior to the study of its genesis we might very much simplify our problem. But we have learned from various experimental

sources that it is one of the most complicated of our psychological questions. It is not a problem of metaphysical consequences attaching to any theory of origin but only to its nature, and besides the whole question of origin is so complicated by the complexity of the elements entering into the idea of space that the philosophic interest attaching to the former conception of its simplicity has been lost.

In choosing between nativism and empiricism, as theories of space "perception," we have first to ask whether the question with one or the other of these theories is that of *definite* or that of *indefinite* space, that of localization definitely represented, or that of the general space quale which we distinguish from other and associated characteristics in the sensation. Accepting the distinction between definite and indefinite space the theories of empiricism and nativism might be reconciled, if that term is usable, by dividing the territory, empiricism taking that of definite space or localization and nativism taking that of indefinite space or the extensive quale.

But the problem is still more complicated, and in a twofold manner. There is first the question of the spatial quale in the individual senses, especially those of vision, touch, and hearing: and secondly their relation to each other in "experience." In regard to the first of these some will insist that space is not a common sensible, but an object of one of the senses and having an associative equivalent in the others, something from which the presence of an associated spatial quale is inferable. Others will insist that space is a common sensible, representing a like characteristic in at least three of the senses. I think that much can be said for the truth of both claims though with qualifications. It is true that there are elements in the sensations of each sense that are wholly different in character from the phenomena of the other senses. Color and sound have no common qualities, nor hardness and color, though mutually associable. It is possible to view the spatial quale of each sense in the same way, except that there must be something common about the spatial element in order that the term "space" may be legitimately applicable to the content at all. But in spite of this the two or more qualia may have accompanying differences which it may require experience to eliminate for the discovery of the common characteristics. It is very probable that the criterial space "percept" is taken from one of the senses, usually the visual phantasm, and the others adjusted to this by experience and association.

The view here taken will indicate the answer to the question whether the conception of space is abstract or concrete. Kant emphatically

denied that it was an abstract general concept, but he gave no definite affirmation or description of what it was, except to call it a "pure intuition," which has no meaning whatever as an intelligible account of it. It is probable that Kant took his conception of space wholly from vision, from the visual phantasm or expanse. If he ever admitted tacitly or otherwise that a space "percept" was possible in other senses, he probably conceived it as exactly the same as in vision. Kant is absolutely silent on this matter. If he limited it to the "intuition" of vision, it is clear why he denied that it was a general abstract concept. But as it is possible to recognize a spatial quale in several senses and as, with the differential characteristics in them, there are data for an abstract concept of space, which is more than probably a fact, even if the matrix out of which it is formed is obtained from one of the senses and other experiences interpreted in terms of it, we may find a basis for an interpretation of its meaning somewhat different from the usual one ascribed to Kant. But this conclusion that the idea of space may be abstract does not interfere with the main contention of Kant that it is unique in its character and that our view of the nature of space affects metaphysical problems while its genesis does not.

In the light of the analysis of space conceptions just indicated, showing that they may represent both a definite and an indefinite "percept" and both an abstract idea and a number of concrete forms, it will be useless to decide the merits of the controversy between empiricism and nativism in any other way than to accord both of them a relative justification. It will then devolve upon us to examine the nature of space "perception" as a condition of estimating its relation to the "knowledge" of objectivity.

The immemorial problem of "knowledge" has been connected with the question whether we could ever "know" anything beyond our mental states and affections. This we have indicated in previous discussions. In thus defining it, I am not ignorant of the complexities and equivocations of such a formula lurking in the terms "knowledge," "beyond mental states," etc. I am only stating a form of conception which is not of my own making and which at least appears to confine "knowledge" to the functions of the organism or mind in the sense that its boundaries are to be defined by the limits of the organism itself. It is not my task here to define or analyze the formula or to determine what is true or false in it, but only to indicate for the present that the result of conceptions antecedent to the adoption of the formula has brought men to state their conclusion in this language with its real or apparent import. How this movement began we shall see in a moment.

But long after it had seized speculation the triumphant refutation of scepticism was based upon the accepted integrity, that is, objective import, of our idea of space and its impregnability against sceptical analysis and attack. But the Kantian claim that space is "subjective and ideal," whatever Kant meant by it, reanimated the old controversy, and, at least in the light of traditional conceptions and implications of the terms "subjective" and "ideal," suggested the limitation of "knowledge" to states of consciousness in a more radical sense than ever. While previous thought, accepting the relativity of our "knowledge" of matter, had still remained by the objectivity of space, the new position taken by Kant, applying the same language of relativity to space, left the imagination with nothing but the subject and its own evanescent states as the objects of "knowledge." What it meant in the field of "perception" was that we could "*perceive*" only what we *have* "in experience": that is, nothing "outside" consciousness, and so at least apparently outside the organism, could supposedly be "known." The range of the "knowable" was limited to the states "known" or *had* as actions of the subject.

The "phenomena" of illusions have been the most important influence in suggesting the way in which the limits of "perception" shall be determined. They indicate that the supposed reality beyond the mental state and which is so confidently assumed in normal conditions may be nothing more than the subjective act. The resemblance between the illusion and the normal state, between the "phenomenal" and the "real," is so close that the unity between them is gotten by eliminating the "reality" of the normal, the only difference between the two being that the "reality" which may be assumed to be inferential is liable to error, so that *certified* "knowledge" appears to be confined to the subjective. Valid "perception" seems thus to be realized as fully in illusions as in the supposed normal consciousness, the "reality" of whose external object seems dubious because it is inferential. Briefly stated again, the formula of the idealistic doctrine seems to indicate that we can "perceive" only what we *have;* that is, "knowing" and "being" are identical, or *esse is percipi.*

The rise and development of this conception is an interesting bit of history. I mean, of course, in reflective and speculative thought. The whole doctrine got its inception from the naïve materialism of Empedocles which was most probably a reflection of common notions at the time. The manner in which Empedocles accounted for sense perception by the impact of eidola or corpuscular effluvia upon the sensorium, eidola which were the *facsimile* of the objects from which

they were projected, appears to us absurd enough, especially from the point of view of evidence. But it illustrates clearly the assumption that there is some qualitative resemblance between the "impression" and the stimulus or cause of sense "perception." The figure of a seal and the wax even in Aristotle carried the same implications with it and probably affected the conceptions of antiquity to a large extent. The Greek admitted the distance of the object from the sensorium, but because he could not admit any doctrine of *actio in distans* he could not account for the "knowledge" of the object without importing into the process the conception of contact with the subject and a structural resemblance between the object and the "impression," probably because of his monistic philosophy assuming a larger measure of identity between thought and reality than modern speculation. That is to say, though "knowledge" was not limited to the subjective state, there was some kind of identity between objects and "knowledge," the "reality" and the "impression" being similar, while the intermediate distance between them was traversed by eidola resembling both of them.

But this naïve corpuscular theory was very soon supplanted by the doctrine that it was not eidola but motion that affected the subject by passing through the space intervening between it and the object, and hence served as the mediate stimulus of the sensorium as did the assumed eidola. Here the whole conception of the case is changed. In the Empedoclean view the assumption of identity between the "impression" and the eidola, and between the eidola and the object, sufficed to justify the belief about the nature of the object. But in this new view, depending upon the mediating and causal agency of motion, there was no definite indication at first that motion and object were like each other. In fact it was rather distinctly assumed that they were different, and as the older conception of the object still prevailed the analogy of the seal and the wax did not apply. Consequently, the inevitable tendency of the new conception was to set up an antithesis of kind between some of the data involved in sense "perception." There were three things to be considered: object, motion and "impression." Until Plato came to revise the problem the motion was not like the object, and then the problem was to determine how the external object, separated from the "impression" and unlike the mediating cause, could be "known." The consequence was, owing to the continued prevalence of the assumption that contact was necessary to "knowledge," that "perception" was limited to the sensory state, whatever that was, and the further assumption made that this state was not an indication of the nature of the object external to it. The logical

outcome was the doctrine of the Sophists which was reinforced by the general relativity of "knowledge," this being based upon the fact of illusions as well as the assumption of contact with the organism as a condition of "knowledge," though the contact was that of the mediating motion and not the object or an eidolon. The Sophist still assumed the identity of the "object" and the "impression" (thought and reality), but he did not locate the "object" beyond the subject in his conception of the thing "known." The sense of antithesis remained between the external "object" and the "impression," but for "knowledge" this external "object" was *nil*, the "real" object being the mental state, and the other remained merely as a concession to inherited convictions which were hard to eradicate, even though the logic of the case at least apparently requires this to be done.

The most important thing to remark at this juncture of the case is the fact that later thought never returned to the naïve conceptions of Empedocles for the purpose of rendering the process of "perception" phenomenally intelligible. The influence of the conception of motion was too great to permit this reaction. The speculative philosopher felt obliged in the field of vision, which was considered as the primary source of "knowledge," as the statement of Aristotle proves, to abandon the conception of contact as an explanation of "perception" and consequently had a perpetual puzzle before him in the question: "How can we 'perceive' what is not consciousness, or what is not in the contact with the organism?", or "How can objects at a distance be 'known' at all?" when what is "known" coincides with the "impression" involving the idea of contact as the condition of "knowledge." Presumably objects are not "known" at a distance in tactual experience which is the most fundamental source of our conception of "sensation," according to the usual assumptions, while vision is predominantly the "*perceptive*" sense, as touch is the measure of *sensation*. In touch the supposed external object and the sensation have the same locus, the sensorium or organism: in vision the common assumption is that the object is not in contact with the organism, and the very existence of it is presumably an inference from the experience of touch and other senses where contact is the condition of the reaction. But as the motion (vibration in modern parlance) which is generally supposed to issue from the object does not represent the object in kind, but does satisfy the principle of contact, according to the accepted view, in vision, while tactual experience and the assumptions associated with it determine the tendency to interpret sensation as functionally limited to the locus of the sensorium, the inevitable result

is to interpret visual phenomena in terms of the principle of touch when speaking of sensation, the object in this sense being and acting where it is, so that in sight the object at a distance becomes "unknown" and the only thing "known" is the "phenomenon" or "experience." Apparently we seem forced to interpret vision by touch or touch by vision, and as contact and sensation are the condition of representing its function, and distance and "perception" the condition of representing the function of vision, the only unity of conception between them will be found by accepting one or the other as the type, and to the idealist that conception is the contact of touch, with the object at a distance as "unknown." If the general visual process is to be interpreted by the assumptions of tactual experience, these being in terms of contact and its causal meaning, visual "perception" has the same limitations on the assumption that this process cannot transcend the events occurring in the sensorium. If touch is to be interpreted by the analogies of vision, where the object either directly or indirectly "known" is supposed not to be in contact, we come into conflict with the fact that we do not "perceive" the tactual object at a distance. The consequence is that we get our unity of conception in the general idea of sensation which limits its nature and meaning to the area of the sensorium and the object must be there in order to be "known," or if it is supposed to be at a distance, it is apparently a conjectural thing. Now as the principle of identity had all along been assumed to determine all intelligibility, that is, to make things understandable in terms of like kind, this new assumption of an antithesis between thought and reality, of difference between sensation and the object causing it and not a part of the consciousness "knowing" it, only availed to make the object unintelligible according to accepted standards of identity. The conception of it at a distance, with motion as the mediating agency for affecting the sensorium and the "known" thing being presumably only in the subject, results in the tendency to interpret vision by the assumptions and conceptions of touch as the standard of judgment, and to consciousness the object at a distance is *nil* or conjectural. Or to put the same thought in another way, what is not a qualitative part of the "impression" cannot be "known," if the ordinary criterion of "knowledge" from the experience of touch be accepted.

This conclusion, as the conception of philosophy, brings us to the doctrine of Berkeley who seems to have been under the influence of assumptions which he did not analyze. His whole discussion of space "perception" was governed by the assumption that what was not "in" the sensation or "impression" could not be "perceived." This doctrine

was embodied in his formula "*esse is percipi.*" The physiologists of the same time evidently took the same view assumptively, though they never exactly formulated it. But their conception of the conditions of "perceiving" space at all involved the idea that what is "perceived" must be represented in kind in the image or "impression" when space was the "percept."

The most important fact to note in Berkeley's position is his argument to exclude the nativity of the visual "perception" of the third dimension. It was in clear accordance with the assumptions which have just been indicated. The argument used by him against the organic and natural "perception" of distance in vision was that the third dimension was not found in the image on the retina. At the very outset of the "*Theory of Vision*" he says: "It is, I think, agreed by all that distance of itself, and immediately cannot be seen. For distance being a line directed endwise to the eye, it projects only one point in the fund of the eye — which point remains invariably the same, whether the distance be longer or shorter." In a later section he says: "It is plain that distance is in its own nature imperceptible." Again: "From what hath been premised, it is a manifest consequence that a man born blind, being made to see, would at first have no idea of distance by sight: the sun and stars, the remotest objects as well as the nearer, would all seem to be in the eye, or rather in his mind." In many other passages Berkeley reiterates the same thought. But these quotations suffice to show that he thought the presence of the third dimension, or solidity in the visual "impression," was necessary to its immediate "perception" by that sense. The plausibility of the assumption rested upon the fact that plane dimension was found in the retinal image precisely as conceived, while it was clear from the law of optics in the transmission of light and the production of images that no solidity was present in the "impression." Though Berkeley was careful to assert over and over again that there was no resemblance between the "percepts" of touch and vision, he assumed, in the interpretation of vision the principle of contact and identity of representation in that sense between object and image as necessary to give solidity, and not finding this condition present limited the "percept" to the optical phantasm and said "*esse is percipi.*" It did not occur to Berkeley that the asserted difference between the two senses might involve the instinctive "perception" of the third dimension and that there might be other conditions than a spatial quale in the "impression" to determine the naturalness of space "perception" in that sense.

But when he came to discuss the "perception" of plane dimension,

he denied its nativity on other grounds than the absence of it in the retinal "impression," and virtually abandoned the assumption which was so necessary to the validity of his argument regarding solidity. He based the denial of the nativity of magnitude or plane dimension upon the relativity of its "perception," that is, upon the quantitative variations between the dimension of the image and the dimensional quantity of the object seen. He noted the fact that the spatial magnitude of objects remained the same for judgment at any and all distances while the image was smaller for the greater than for nearer distances. But as his argument against the native "perception" of solidity was based upon the assumption that, to be "known" directly, it must be in the image, he ought to have seen that the admission of plane dimension in the retina, whether quantitatively identical and corresponding to the dimensional quality of the object or not, was necessarily a guarantee for the nativity of the space "percept" in plane dimension, so that the facts to which he appealed to disprove it only showed a quantitative difference between the retinal quale and the spatial quale of the object. In fact it was logically necessary to admit or assume the nativity of plane dimension in order to make the fundamental argument good against the nativity of the third dimension. If the absence of a dimension in the image prevents its native "perception," its presence there ought to determine this "perception." For if this is not true there is nothing to prevent the supposition that solidity is native in spite of its absence from the retinal image. But since the assumption of plane dimension in the retinal "impression," according to the use made of it in regard to solidity, enforces a conclusion which is contradicted by the conclusion from the relativity of magnitude, as drawn by Berkeley, and since his doctrine denied the nativity of space "perception" throughout vision, we can only conclude that this denial had to be maintained independently of the question whether the retinal image contained the dimensional quale "perceived" or not. The abandonment of this point of view, however, indicates either that his fundamental assumption was not valid or that his consistency required him to admit the nativity of plane dimension in spite of the quantitative difference between the image and the dimensional quale of the object. For on the assumption of the conditions excluding the "perception" of solidity, he must admit either the nativity of plane dimension or that its presence in the image does not determine its "perception." The former alternative contradicts his general doctrine and the latter contradicts his assumption necessary to prove the acquired character of the third dimension in vision. Now if the presence of the dimensional

quale in the image does not necessitate its natural "perception," its absence from the image cannot prevent the "perception" of it directly. This is the necessary consequence of the whole argument adopted by Berkeley, and it means that we cannot assume that the quale "known" is necessarily a part of the content or nature of the "impression." This fact once granted the whole Berkeleian doctrine becomes groundless. It will be apparent from such a result and from the supposition that the "percept" may not be a part of the "impression" qualitatively, that the doctrine of "perception," "intuition" or apprehension, as conceived by the phenomenalist or idealist, must be profoundly affected thereby, whether for good or ill. Berkeley was unconsciously governed in his judgment of the case by the principle of identity, assuming that there must be some identity between "impression" and "percept" to guarantee the nativity of the latter. If, however, we discover that this identity between the quale of image and the "percept" is not necessary to insure the proper "perception" of the object and its quale, we have found a condition of things in which the principle of identity does not supply the only terms of which "knowledge" of external reality is assured. We saw this to be true in the treatment of judgment and cognitive "knowledge" of reality, and now the same conclusion seems to hold good in regard to the apprehension of space. Further discussion may make this clearer.

We know that Berkeley explained the visual "perception" of space by association or suggestion from muscular and tactual experience. But it never occurred to him that it was quite as easy to raise the sceptical question in regard to the nativity of space in touch as in sight. Of course, he was not likely to suspect this, as his assumption of the principle of contact and the representation of the quale "perceived" in the impression" induced him to accept tactual space without analysis or scepticism. It was all very nice for a paradoxical philosophy to beg the question in one of the senses while applying criticism to another. How the association of a tactual quale with vision is possible when there is nothing common between two senses, according to Berkeley, is not clear in any sense implying a similar object of apprehension. Nothing in vision could be called a spatial quale, so that the association could not involve an identical datum. If, in spite of the appearance to the contrary, a space "percept" is not natural to visual experience, the sceptical question is as easily raised elsewhere as in this sense. In fact, it seems to me, that there is no more reason to suppose that space is native in touch than in sight. Berkeley's argument may puzzle those who cannot have the last word with a philoso-

pher, but it does not disturb the equanimity of those who feel as capable of deciding what they *see* with their eyes, whether subjective or objective, as they are of deciding what they *feel* with their hands. Of course, we may neither feel nor see anything. I shall not here deny a consistent scepticism. But I should not be troubled any more with the phenomena of vision than with those of touch. I agree that there is a quale in touch that becomes associated with another in sight; that a certain fact in vision will have a certain associated meaning in touch. But that they should be identical is to admit the presentation of the same datum in both senses, even though there are accompanying differences that make it difficult to discover the common qualities. But it was the object of Berkeley's doctrine to deny this identity and consequently to deny the nativity of space in vision, but also to deny the view that a quale could be "perceived" which was not in the "impression." The consequence of this to the theory of idealism ought to be apparent. But this is a matter to be examined again. Attention is called to it only to remark the meaning that must be attached to the term "perception" when we suppose that the process transcends the state of consciousness which it names.

Now whatever we may think of Kant's doctrine of space and its "perception" it is certain that he cleared up a great deal of confusion by asserting the ideality of it, though he created as much confusion in another direction as he removed in this. His general view that space was subjective and ideal as well as *a priori* was the most radical limitation of "perception" to what was either "in" the "impression" or "in" the mind that had been made. He put forward no paradoxes like Berkeley to prove his theory. He simply asserted its ideality and allowed the logical trend of philosophy to accept it without specific or experimental proof and it cut up by the roots all motive for any other "perception" of space than such as can be affirmed of any other quality of experience. Nothing could be seen which was not presented or represented in the sensory "impression" or in the act of consciousness. The nature of things was "unknown."

This consequence, however, was due less to any appeal to facts or arguments by Kant that clearly proved the subjectivity and ideality of space, as his theory is supposed to conceive it, than to general tendencies. It was the logical necessity of treating all "perception" in the same way that brought about the general manner of regarding the subject among idealists. But the student cannot read Kant very far without raising the question whether Kant had any clear idea of his own doctrine or knew the influences and assumptions that led him to

it. There is no doubt that he thought he had a perfectly clear idea of the case, but when one has tried to penetrate the wilderness of conceptions by which Kant tried to explain what he meant, he must be confronted with the suspicion that, in spite of certain uniformities of expression on the issue, we are dealing with a mind that has no conception of clear and consistent thinking. Vaihinger's *Kommentar* shows what a thicket we are in when we undertake to say what Kant thought of space, or any other subject on which he spoke, to say nothing of the differences of opinion among students of the system. It is complicated with his ideas of Empfindung, Anschauung, Wahrnehmung, Vorstellung, Erscheinung, Dinge an sich, *A priori*, Form, Substance, Eigenschaft, Beschaffenheit, Wirklichkeit, Realität, Erfahrung, Empirisch, Begriff, Transcendental, and perhaps a dozen other terms and conceptions. Any attempt to explain his doctrine must reckon with all these and one has not to proceed far before discovering that he has a volume on hand to escape the denial that he understands Kant. Then he has, in addition to the general confusion of these terms, to consider that at almost every step the content of those terms is not what it must be in order to make the issue what it is supposed to be. That is, we are generally made to believe that Kant is discussing the problems of Hume, of scholastic philosophy, of idealism and realism, of materialism *versus* idealism, etc. But presently we discover that he is using many of his terms in wholly new senses which represent only a convenient way of running away from the issue while he makes his antagonist believe that he is still there fighting. An old proverb expresses the situation under another analogy. Kant is constantly putting new wine into old bottles, and as a result they either burst or we find that the wine is not what we contracted for. In such a predicament the discussion of Kant's doctrine must impose heavy obligations, if it is to stand criticism. But if we cannot be certain what Kant's doctrine *is*, we may discuss his more fundamental propositions in a way either to show what that doctrine *ought* to have been in the conceptions of his day and in the light of the philosophies which influenced his mind, or to suggest some considerations which may have influenced Kant in both his terminology and the asserted ideality of space. Possibly it would be well to do both of these and I shall enter at some length into the examination of his views. I shall not pretend to give a complete conception of him nor insist that my suggestions are superficially deducible from Kant's language alone in its isolated or merely traditional import, but I wish in some way to see if we can arrive by criticism at ideas that may show a larger possible consist-

ency with actual human thinking than is apparent at first. I say, "process of criticism" because I mean to test important conceptions in his system. I shall start with the most essential proposition in his theory.

I pass by, for the present at least, his reference to the *a priori* nature of space "perception" and his description of it as a "form of intuition" (Form der Anschauung), and take his more fundamental conception of it as "subjective." This conception of it is added at times to that of a "form of intuition," though it is often manifest that Kant intends that the two phrases shall be identical in their import. But I wish for the present to confine attention rather to the nature of space as really or apparently conceived by Kant than to enter into discussion of what he meant by "intuition" and "form" as a precondition of understanding him, however important they may be in the final account of his theory.

Now what does Kant mean by calling space "subjective"? Many of us from time immemorial have meant, when calling a thing subjective, that it is not objective, that it is a purely mental product. But Kant calls space both! This is unquestionably his position in the Æsthetic, though he seems in the Analytic to think of it only as "subjective." But when he calls it both, he certainly does not mean to accept the antithesis that these terms have in the minds of the realists generally, namely, the distinction between the external and internal, or between the real and ideal, as that had ordinarily been conceived, though there is real or apparent evidence that he was not wholly consistent on this point. But for the time he did not mean to discuss the problems in which this antithesis originated.

But then if Kant did not mean what is superficially suggested by his language, did he mean by it the Protagorean *relativity?* This was simply that it was not "universal," or that at least we had no evidence that it was "universal." But we know that Kant was explicit on this point and said definitely that all men had this "percept." It is interesting, however, to remark two passages in which Kant indicates very clearly that his doctrine has to face the suggestion that it implies this relativity. He alludes to the fact that we can speak of space only "from the standpoint of man," and that we cannot decide whether other thinking beings have it or not. What he meant or supposed by "other thinking beings" we are not told. But if "other thinking beings" might not have it, how does Kant know that all men have it, after calling it "subjective"? Have we the influence of Swedenborg here? Taking this term in its sense of being peculiar to the mind and not char-

acteristic of external objects in the conception of "common sense" he creates a position in which he has no evidence but dogmatism for his contention, and it is certain that Kant simply assumes the fact and offers no evidence whatever that space "perception" does characterize all men. But whether consistent or not in this respect it is apparent that Kant intends to apply the term "subjective" consistently with the conception of "universality," in man at least, and so indicates that he has not in mind the doctrine of relativity, as was so natural to suppose from the description of space as "subjective." But we have still to ask what he does mean, if he does not intend relativity by it.

Now again we have been accustomed to use the term "subjective" to imply illusion or hallucination, or when not exactly these, the limitation of the fact to the subject as an event, whatever further reference or implication it may have. We describe illusions and hallucinations as "subjective" on the ground that they are mental states only, with no objective reality involved and yet corresponding to the natural or normal meaning of such experiences in response to the proper stimulus. They have no correlate which we call reality in the usual representative interpretation of it, though the person experiencing them actually mistakes the experience for one implying a definite reality. That is to say, we assume that an illusion or hallucination is "subjective" and mean to indicate that the terms are more or less convertible. Kant was evidently aware of this connotation, since he definitely protects himself against the implication, and says that, while space is "subjective," it is not "Schein" or illusion. This is a purely negative description of it and the further question is whether he intends to describe it positively as real. In regard to *time* he explicitly affirms its reality, whatever he may mean by his assertion. Of this, in answer to the criticism that his doctrine denies the character of time as understood by "common sense," that is, its objective reality, he says that it is to be considered "not as an object, but as a mode of conception or presentation of the subject" (nicht als Object, sondern als Vorstellungsart meiner selbst), and as having "subjective reality in respect of inner experience" (subjective Realität in Ansehung der inneren Erfahrung). In these statements and the whole passage from which they are taken, Kant unmistakably shows that he intends to apply the predicate "reality" to *time*, in some sense, and on the next page of the *Critique* he makes it equally clear that he intends the same conception to be applied to *space*. It is apparent on examination, however, that he pilfers another meaning into the case than the one which his antagonist assumes and with which the latter creates his objection. Kant gives it "empirical

reality," and not "transcendental" in any objective sense. That is, he refuses it the objectivity which his critic may mean by "reality" and then assumes that the term "reality" means *factuality* or existence as opposed to non-existence in "perception," in order to affirm it of space and time. This is a subreption of another meaning and an evasion of the issue which is a vice very constant with Kant. We should perhaps remember, however, that Kant's conception of "real" was determined by his relation to the metaphysical and scholastic "realism" against which he was directing his philosophy. The conception of that term for English thought has been determined by the attempts to answer Berkeley and Hume and not to answer the scholastics, or Leibnitzianism, or Wolfianism. English "realism" was an *epistemological* theory: continental "realism" was an *ontological* theory. The English "real" was the external: the continental "real" was the metaphysical and supersensible. Kant's denial of the "reality" of space and time, therefore, was not the denial of their externality as facts of nature, but the denial of their metaphysical "reality" as "things in themselves" or as properties of "things in themselves." Their "empirical reality" which he affirms may, therefore, coincide with the English conception of the case. It is certain that Kant did not come to the problem with the same conception of it that the critics of Berkeley had, but was affected by the *a priori* metaphysics of the scholastics and Leibnitz, and had them to refute. This indicates that he was not opposing the ordinary realism but the transcendentalism of scholastic philosophy.

It is interesting to remark, however, statements that may be interpreted as contradicting the contention which I have just explained as implying the "subjective" ideality of space as against ordinary realism. They occur in the "transcendental exposition of space." Here while he contends that space is a subjective intuition Kant still regards it as giving external (aüssere) reality in some sense which he is willing to consider as an "object." We may find on further examination that all this is still subject to the modification that all "phenomena" (Erscheinungen) are or have only "empirical reality," but it is clear both in this part of the discussion and in that about time, where he distinctly calls attention to the difference between space and time "perception" in relation to the theory of idealism, that he means to assume a meaning for space more consonant with the doctrine of realism which he is supposed to deny than perhaps other statements would seem to indicate. I mean, of course, the ordinary realism. It would usually be assumed that the simultaneous affirmation of subjective in-

tuition and external reality for space was a contradiction, but there must have been some reason for it in Kant. I shall return to this point of view later and use the distinction thus implied by Kant for an important purpose which I cannot explain fully at present. In the meantime, we are forced to recognize the fact that, in spite of this appearance of realism in the system, Kant's further statements about space in connection with "Erscheinung" and its nature indicate that he has to face the accusation of his critic that "phenomena" (Erscheinungen) are illusions (Scheine). First he speaks of space as a "Form aller Erscheinungen aüsserer Sinne," and also as "Form der Anschauung" in which there can be no distinction between "Erscheinung" and "Anschauung." Then again he speaks of the "Vorstellung des Raumes" after we are supposed to have distinguished between "Vorstellung" and "Anschauung" on the ground that "Vorstellung" may be convertible with "Empfindung" and "Anschauung" as not so convertible with it. All this shows confusion worse confounded in the system on the ordinary interpretation of language. But assuming that it can be elucidated by some logical hocus pocus we can return to the critical issue imposed upon him by his own anticipation of the objection that "Erscheinungen" as well as space and time are illusions.

Now Kant's answer to this objection is the same as that given in the reply to the criticism of his idea of time. He denies that "Erscheinungen" imply illusion (Schein) by the same subreption as that which we have remarked in the case of time, though the mere fact that he anticipates this interpretation of "Erscheinung" shows that its meaning lies close to that of illusion. Kant's reply simply substitutes *factuality* for *objectivity* as the meaning of reality, and thinks that he has answered his critic's objection. He identifies sensory impression with "phenomena" and calls these "Veränderungen unseres Subjects," qualifying this statement very carefully by the term "blos," which, if it has any significance at all, positively emphasizes what the naked expression clearly implies, namely, the exclusion of objectivity or external reality from them. Thus he has to speak of "Erscheinungen" as "subjective" also and at the same time he definitely indicates that the "Empfindungen," which are also treated as "Erscheinungen," that is, as relative in the Protagorean sense, though this in connection with the denial of the relativity of space which shows a conceptual lineage with "Erscheinung," as its "Form" involves some confusion. But passing this aside, let us confine ourselves to his attitude toward sensation and phenomena which he does not wish to regard

as illusions. The very necessity of discussing this question shows that Kant was aware of the point of view from which he expected to be criticized and hence a realization of the nature of the objection. Hence the only matter that remains is the query whether he fairly answered the objection. That he simply distorted the meaning of "reality" to suit the necessity of an affirmative proposition where he ought to have had a negative, proves that he did not face the issue squarely. He used it in neither the epistemological nor the ontological sense of scholastic metaphysics, but only in the sense in which any *fact* is "real" even when it is merely a subjective state. But whether he did or did not use the term fairly, it is apparent that Kant *wanted* to use "subjective" in a sense to exclude both relativity and illusion.

Let us look at another set of facts in this connection. Philosophy had previously admitted the ideality of the secondary qualities of matter, and had only questioned that of the primary qualities. Kant's whole doctrine denied, explicitly or implicitly, this distinction between the two classes of properties and idealized both. Berkeley had done the same. Kant ought to have seen then exactly why his critic objected to the "subjectivity" of space and not to have quibbled about the term "reality." The meaning of the ideality of the secondary properties was clearly enough recognized as indicating their non-externality and non-reality as "known," so that the idealization of the primary qualities ought not to have frightened Kant into apologizing for the consequences by equivocating with the term "reality." However that may be, we must notice an interesting circumstance in the development of his position. In the first edition of the *Kritik* he said, speaking of the space "intuition," that "this subjective condition of all external phenomena can be compared with no other. The pleasant taste of a wine does not belong to the objective properties of the wine, that is of an object considered as a phenomenon, but to the peculiar activity of the subject which enjoys it."[1] In this and further remarks he shows beyond question that he maintains the subjective ideality of sensory states. In passing the student should note the peculiar use of the term "phenomenon" (Erscheinung) in this quotation. But the important thing to be observed is the omission of this passage from later editions of the *Kritik* and the substitution of a passage in which he reaffirms

[1] Diese subjective Bedingung aller äusseren Erscheinungen mit keiner anderen kann verglichen werden. Der Wohlgeschmack eines Weines gehört nicht zu den objectivien Bestimmungen des Weines, mithin eines Objects sogar als Erscheinung betrachtet, sondern zu der besonderen Beschaffenheit des Sinnes an dem.Subject was ihn geniesst.

this subjectivity but denies absolutely the ideality of "phenomena," that is, the secondary qualities of matter. This is a strange inversion of the previous conceptions of objectivity and idealism. Previously idealism had supposed the ideality of the secondary properties and the reality of the primary, space and time. Here in this substituted passage, Kant seems to deny the ideality of the secondary qualities and to affirm that of space. In the "Allgemeine Anmerkungen," however, he asserts the very opposite of this by maintaining the "ideality of external as well as internal sense 'perceptions,' and consequently of all objects of sense" (Idealität des äusseren sowohl als inneren Sinnes, mithin aller Objecte der Sinne"). In all this we have apparent a perfect mesh of equivocations and contradictions that make it impossible to determine exactly from Kant's usage what he means by "subjective" unless we analyze the problem in a way to show that he was not respecting the traditional import of the term. This will be found in the end, I think, to be the fact.

In the usual parlance of philosophy we have had a number of antitheses whose meaning has been tolerably clear to most men, each term of the antithesis helping to indicate the import of the other. They are "external and internal," "subjective and objective," "universal and particular," "ideal and real." It has been intended by philosophers, most of them at least, that these antitheses should be convertible with each other, that is, that the distinction between the "external and internal" should mean the same as that between "objective and subjective," etc. But this is not always the case. They might partly or even wholly *coincide*, that is, what is said to be "universal" might also be found to be "objective," and the "particular" might be found where the "subjective" was found, but the coincidence would not be evidence of identity; and so on with the several antitheses throughout. If in any case they are supposed to be convertible or identical the fact requires proof and should not be assumed. Now Kant often regards some of them at least as identical and simply assumes that coincidence proves identity. For instance, he makes "universality" convertible with "objectivity." He may be right as a matter of fact, but they will hardly be the one or the other for the same reasons, while their identification more or less violates the historical usage that gave the terms a different import. But in spite of this and the accepted antithesis between some of the terms in traditional usage, Kant, as I have indicated above, actually regards "subjective" and "objective" as coincident in the same fact, namely, that of space, and thus assumes that the antithesis does not hold good. If objections to a doctrine are

to be met by adopting contradictory statements as describing his position one can refute anything! No wonder Hegel could talk with impunity about the unity of contradictories. If you simply steal a new meaning into the terms of your critic and surreptitiously eliminate the conceptions which determine the real problem and the basis of controversy, you can answer any difficulty. This was Kant's policy throughout and one is tempted to insist that he ought to have been hanged. He was never prepared to accept the logical consequences of his real or apparent position, nor to give a clear square answer to critics. He wanted to say that space was "subjective" and yet to deny solipsism. He wanted to idealize space as well as the secondary qualities of matter, and yet to believe in an external reality not admitted of the secondary qualities mentioned, and then to keep possession of the antithesis asserted that the properties of matter had "absolutely no ideality." Philosophically he was trying to adopt the language of both idealism and realism without resorting to so complete an analysis of the case as both his agreement and difference with the two theories required. He felt the force of the antithesis between them as historical doctrines, but he did not know how to remove it when supposing that there was both a truth and an error in the way of stating the actual nature of "knowledge." How then can we bring out what Kant is supposed to have intended? Can we find the desired unity in his conceptions, and if so, how can this be affected?

In answer to this question, I shall take the two positions assumed by Kant and which are so often treated as contradictory, and analyze them as they require. Formally and in terms of the historical and traditional use of the terms they are contradictory. But can we give an analysis of the problem that will elicit conceptions at which Kant may have aimed when he did not clearly remove the antithesis mentioned? This I mean to try and hence the two conceptions with which I start are the subjectivity and externality of space. Whether we should choose these alternatives as necessarily opposed to each other, I shall not decide, for the present at least. I shall simply recognize the fact that Kant insisted upon affirming both. His relation to the two and different types of realism may be the clue to his confusion, as we shall see later, having briefly alluded to it above and indicated that the best way to approach him was with the assumption that the difficulties of the system arise from the conflict of his language with epistemological realism and not with the ontological. But that he insisted on the subjective, *a priori*, and ideal nature of the space is not doubted by any one, but many insist that he either had no right to admit any affilia-

tion with realism in asserting an external world, or that his meaning is not what appears on the surface. That he insisted on an external reality in some sense is apparent in several contentions. First, he constantly uses the expression that the *a priori* subjective nature of space is necessary for the very purpose of conditioning the "knowledge" of an external world of sense. This frequent mode of expression will be found in the sequel to be of great significance. Secondly, he uses the term "outer" (ausser) without any qualification, which would suggest that he intended it in the purely objective sense. Thirdly, he distinctly asserts in the "Refutation of Idealism" (Widerlegung des Idealismus) that the "consciousness of our own existence proves the existence of an external world" (Das Bewusstein meines eigenen Daseins beweiset das Dasein der Gegenstände im Raum ausser mir). We may say all we please against the real or supposed inconsistency of Kant's attack upon idealism. That is indifferent to the question to be discussed here. I am dealing first with the system as it is, and hence am asking whether there may not be an interpretation which may show that Kant was fundamentally, and in spite of appearances to the contrary, more consistent than is supposed. He himself evidently thought he was consistent and must be examined first on that assumption. That is, we must try to explain why he took this position and why he thought he was justified in denying the idealism (material) which he attacked. Hence I repeat the Kantian assumptions with which I wish to initiate an examination, namely, the subjective nature of space and the existence of an external world which that subjective space would seem to contradict.

Opposition to solipsism always commits a man to some form of realism, as we have found in earlier discussions, if for no other reason than that the subject's own states are not the only facts accepted in "knowledge." The idealist admits other conscious subjects besides himself, which he could not admit if his "knowledge" were strictly limited to his own states. Idealism, therefore, has to make its peace with solipsism and the proposition that there are other conscious subjects is its treaty. There are two types of realism, the naïve of "common sense" and the hypothetical of philosophy. Idealism may controvert the former but be identical with the latter. Naïve realism assumes that the state of "knowledge" represents the nature of the object as it is seen, and so supposes more or less resemblance between "knowledge" and reality. Hypothetical realism assumes more or less of a difference or antithesis between the mental act and the object believed to exist. Hence the only realism which the idealist can oppose

is that which interprets external reality by the principle of identity, not between the act of "knowing" and the thing "known," but between the presentation and the object; that is, the realism which takes the qualities of reality to be exactly as they appear. Whatever distinct names we give to the two types of realism, it was the latter type that Kant's position would dispute, though I rather think that he did not have this alone in mind, but mainly the metaphysical realism of the scholastics, as perhaps most persons will recognize, and I state the fact here only to make clear the *point de repere* from which to view his doctrine. This is made apparent by Kant's accusation against the common mind (empirischer Verstand) that it takes sensory data for "things in themselves" (Dinge an sich). Assuming, then, that Kant was denying what I shall call presentative realism, as well as the scholastic type, and intending to admit a form implied by the denial of solipsism, which all idealists of the Kantian type deny, I have a position which indicates one characteristic of consistency in the assertion of subjectivity for space and the existence of external reality. But Kant, at least, apparently intends to go farther. He does not wish to agree with the ordinary realistic conception of space as taken from Cartesianism and assumed to be primary and real in the presentative sense while it was considered as the essential property of matter. Hence he introduced a complication into the problem which philosophy previously was not prepared to discuss with its accepted terminology. If he had said that he intended to conceive space in the same way that we relate color to external objects, and thus suppose that there was the same kind of antithesis or difference between space as an intuition (Anschauung) and that which is supposed to condition the very existence of reality, as that between color as a physical attribute and color as a psychical function, he would have had a clear position, whether true or not. He would have stated his intention definitely. But it is apparent that he has not done so, and perhaps many or most persons would contend that it would have been absurd to do it. Certainly he uses language whose easiest interpretation seems to imply the total subjectivity of space in the solipsistic sense *minus its relativity*. He speaks indifferently of the subjectivity of space and of its "intuition," and even indicates that they are identical. This would seem to indicate with absolute clearness the denial of any and all objectivity to what is called space, or the supposed space of the realist. But here is a very significant form of expression by Kant, and frequently given by him in places where he evidently intends it to be fundamental to his doctrine, that this "subjective intuition" conditioned the very exist-

ence of external "perception," or the "perception" of external reality, a statement which he could not have made if he had intended to deny all objective import to the idea of space, since he thus definitely relates it to a reality inconsistent with solipsism. We have in this, perhaps, an explanation of Kant's conception of the simultaneously "subjective" and "objective" nature of space without interpreting "objective" as synonymous with "universality." That is, suppose that Kant meant to assert the purely subjective *genesis* of space "perception" as a function qualitatively determined, with an objective *implication* or even "*perceptive*" *datum*, whether the realism be presentative or non-presentative, and thus distinguish it from the objective genesis and implications of *sensation*, whether presentative or not, though Kant would say that sensation was non-presentative of objective reality in spite of its objective origin. If this is Kant's conception, we must remember, however, that epistemologically he did not intend to assume or deny any identity, that is presentative character, between space as intuited and space as a supposed objective reality and as conceived by the realists whom he actually agreed with, but only as conceived by the realists whom he was refuting. Now is there any reason to suppose that any such interpretation is possible or rational?

If the view indicated be possible we must remember the following facts: (1) the objective *origin* of sensation; (2) the objective *meaning* of sensation; (3) the *subjective nature* of sensation; (4) the *non-presentative nature* of external reality. This indicates Kant's conception of the external world of matter and the way in which we "know" it. The conception of space which I conjecture for examination, possibly Kantian, may be represented in a parallel form with that of sensation. (1) The *subjective origin* of space "perception"; (2) the *objective meaning* of space "perception"; (3) the indeterminate question whether it is presentative or non-presentative of its objective reference.

Kantians will admit the first of these conceptions, but deny the second in any other sense than an application to phenomena. That is, they will say that Kant did not admit any other objectivity for space than a reference to "phenomena" and its universality in human "perception," not its externality. He specifically describes it (1) positively as the "form of phenomena" (Form der Erscheinungen), and (2) negatively, as not a property of "things in themselves" (Dinge an sich). This would seem to mean that its "objectivity" could not mean externality, unless "phenomena" (Erscheinungen) could be treated as external. That is, we are shifted back to the meaning of

"phenomenon" for a solution of the problem, including also that of "things in themselves." But I shall not pursue that direction in the discussion at present. After thus hinting the source of the objection to the possibility outlined and the discussion which this objection suggests, I shall start with a question or two which I have not seen discussed in the attempts to solve the problem. It arises in connection with the statement that space is not a "Begriff" because it is infinite, and that it is not a property of "things in themselves." The analysis of both with their implications will bring out the conceptions which may have influenced Kant in his doctrine, whether they explain it or not.

Now what is the implication in Kant's proof that space is an "intuition" (Anschauung) and not a "concept" (Begriff)? He assumes in his argument that "Begriffe," abstract general concepts, are the result of comparison and abstraction, and that the objects in experience from which they are formed are individual objects of a finite character. That is, the individual objects of "perception" (Wahrnehmung) are derived from the finite presentations of sense. Now if the objects of sense are finite and if space is infinite, it cannot be abstracted from these objects, but must be the product or object of functions not constituted by those in either sensation (Empfindung) or "empirical intuition" (empirische Anschauung). The function has to be a distinct one, and so was named "pure intuition" (reine Anschauung), whatever that may mean. But it is certainly supposed to give what sensation cannot give. All that abstraction can effect is the determination of common qualities which inhere in the subjects from which they are drawn, and it never shows that the quality abstracted exists outside the subjects compared. Space being infinite, therefore, cannot be the object of an act of abstraction. The act intuiting it must be of the mind's own doing. In this way we can understand why Kant wishes to maintain persistently that space "perception" is purely subjective. It is not "given" in sensation and not derived from its objects by abstraction, and consequently must be an "*a priori*" product of the mind, if "product" is the right word, and so a purely subjective "creation" superposed upon experience, or in which it is arranged. If "creation" or "product" wrongly describe the real process, as I think they do, we may look at the act as a subjectively originated one in respect of its content, but nevertheless "perceptive" or representative of an external reality without assuming that it is causally instigated by space as an object. The only question that remains is whether this view of the case has adequate grounds for its assertion.

This query must be answered in some such way as the following. The description of space as infinite apparently implies that it is objective in the realistic sense or that the subject itself is infinite. If space have no external reality whatsoever, or is neither a property nor a relation of "things in themselves," but a subjective "intuition," as Kant asserts over and over again, and if it is infinite at the same time, this quality must be attributed to the subjective act of the mind. That is, all the infinity which we have been accustomed to ascribe to the external space of realism must be referred to the mind of the man who has it. Now if a Kantian is not satisfied with this reduction of the matter, he must admit that space is objective, as not contained wholly in the subjective act which intuits it, even though the act is subjectively originated and not the result of spatial stimulus. Consequently, it would seem that whatever subjectivity we mean to give it, this must be consistent with some form of objectivity implied in realism. Can such a conception be made consonant with Kant's statements elsewhere?

The answer to this question will require an elaborate statement of the ideas by which Kant was influenced both consciously and unconsciously in the formation of his conceptions on every subject in his system. This statement of the ideas affecting his judgment is suggested by the constantly repeated observation of Kant that *space is neither a property nor a relation of "things in themselves."* It is apparent in it that Kant had in mind ideas derived from Descartes and Leibnitz, and that he was denying something which he thought had been affirmed.

Now let me first remark that the significance of Kant's statement will depend, somewhat at least, upon whether the emphasis in the proposition, denying that space is a property of "things in themselves," is placed upon the negative particle affecting the copula, or upon the predicate word "property." That is, we may have two judgments in this form of statement. (1) "Space is *not* a property of 'things in themselves,'" and (2) "Space is not a *property* of 'things in themselves.'" In the first of these propositions we deny all connection between space and things. In the second we admit this connection but deny that space is a "property" of things or as *inhering* in them. That is, we may consciously or unconsciously interpret the concept "property" as implying inhesion and so determining *the same limitations as the subject.* That is, properties of a subject do not extend their existence or inhesion beyond the limits of the subject itself. Now Kant over and over again asserts that space does *not inhere* in things themselves. This, it will be noticed, is quite consistent with his statement that space is infinite and his adhesion to something like the atomic theory of matter. The

first interpretation of the proposition, or perhaps better, the interpretation of the first form of the proposition leads to the Boscovitchian doctrine of *points of force* as constituting the nature of matter. This means that *matter per se is spaceless*. This view is supposed to follow from the Leibnitzian theory of monads. Now it is noticeable that Kant does not say that "things in themselves" are spaceless, but he does say that space is *not* a "property" of them and leads us to conclude that it was the second form of the proposition that he had in mind. This we shall find consistent with the idea that matter or reality "occupies" space, while Kant means to deny that the fact makes it a "property" of reality. Now let us examine the possible lineage of this conception.

As we know, Descartes held the following views: (1) that space was the essential property of matter; (2) that matter was infinite and filled all space; (3) that space was a primary quality of matter and real as "perceived." Both his sensible and supersensible worlds were essentially alike in their nature. But he seems to have regarded space at the same time as not dependent on matter for its existence, though considered as its "property." At any rate, the contention that matter was infinite made it impossible to prove that space was not a "property" of it in the same sense as all its other inhering properties. Spinoza simplified things by making space an attribute of matter precisely like all other properties as Descartes conceived them. Extension and thought, as we know, were the two essential attributes of substance or God, and all others were modes, but all of them inhered in the Absolute. This position made substance, matter or God, at least the logical prius of these attributes, and so *conditioned their existence* on the Absolute instead of regarding space as in any way conditioning the existence of matter, substance or the Absolute. Spinoza insisted absolutely on monism. He could not tolerate two simultaneous absolutes, even if one of them was space and the other substance. Hence we must subordinate the existence of space to this substance and reverse the ordinary assumptions about it which made it necessary to the existence of substance, though not its creator. His position was the logical consequence of the Cartesian doctrine in its essential character, and perhaps led to the idea, held also by previous scholastic philosophers, that the Absolute was above space and time, and perhaps could be described as spaceless, though there was nothing in this conception to prevent the philosopher from holding that reality, the absolute, had extension as a property of it and conditioned its existence as it did all properties, a view the reverse of that which commonly

conditioned substance by space, though not thinking of it as a causal condition.

Now Leibnitz could not submit to the monistic materialism of Spinoza nor to the atomistic materialism of the physicists, and hence he proceeds to the construction of his monadistic doctrine which is a singular cross between Spinozism and Atomism. His primary notion was that of substance, but he could not endure the monistic pantheism of the one school or the pluralistic materialism of the other, and hence he sought to evade both extremes by his peculiar monadism, the details of which it is not necessary to examine here. What interests us is his theory of space. Leibnitz anticipated Kant in the statement that space was not a "property" of matter, but he called it a "relation" of it. It appears, however, that Leibnitz distinguished between "extension" and "space." He regarded "extension" as a property of matter, the amount of "space" which it occupied and which was always the same and represented its limits. In this conception which is the same as that in modern physical dynamics, substance is the prius of "extension," precisely as it was in the philosophy of Spinoza. On the question of "space" Leibnitz was not perfectly clear, though he was most uniform in his statement that it was a "relation." At times he seems to have regarded it as subjective in the Kantian sense, as he certainly so conceived time. At others he thinks of it as "real" though he is careful to deny that it is either substance or accident. This is a most important consideration in determining what he meant by calling it a "relation" and also in estimating the intellectual influences affecting the conceptions of Kant, since it shows what both men had to controvert in the effort to affirm something of space. What Leibnitz was clear on was the statement that "space" was not a "property" of the monads and that it was neither a substance nor an accident of anything else than matter. When he came to say what it was he could only call it a "relation." Now, though it is possible that he meant by his view to assert in a new form, less equivocal as he may have supposed than the idea of "condition," the old doctrine that space was a condition of the existence of matter and to limit the idea of "property" to inhesion and the limitations of matter as regards space, nevertheless the tendency of his mode of expression, as perhaps also various other features of his theory, was the reverse, since a "relation" is usually and most naturally conceived as dependent on the two or more terms of reality for its existence. That is, the things related are the prius of the "relation," and this can in no way "condition" their existence, even though it represents something which

encompasses them. But it was a mistake to call it a "relation" if he meant to regard it as in any way conditioning the existence of reality, and it is evident that Kant saw the matter in this light when he so emphatically denied that space was what Leibnitz affirmed it to be. But as Leibnitz denied that it was a "property" of matter and affirmed that it was only a "relation" his view resulted in the doctrine of Boscovitch, or rather was this, as indicated above, namely, that matter in its real nature was constituted by points of force, and so was spaceless in every sense of the term. This was the situation when Kant came. But before taking his theory up for consideration, another problem must be noticed in conjunction with the Leibnitzian doctrine of space. It is another fundamental conception in his system, namely, the spontaneity of the monads.

The primary object of Leibnitz was to refute materialism. This theory, as we know, explained all "phenomena" on mechanical principles. These represent the transmission of force through matter as a passive medium. In this interpretation of mental phenomena we should have the intromission into the brain of impressions from without. The mind would be purely receptive of everything from the external world after the manner of the transmission of motion, and on the assumption that effects were like their causes, the external world would be properly represented in the internal, and "perception" might well be regarded as giving things as they are and not as they appear, unless with such qualifications as attend all transmission of energy. In brief, materialism makes the mind a passive recipient of sensations and "knowledge" from without. "Phenomena" are a *physicus influxus* from the external world. In other words, *material* causation and the principle of identity are the explanation of mental "phenomena." Now Leibnitz thought to refute this position by his theory of spontaneity in the monads and of preëstablished harmony. This spontaneity of the subject shut out the *physicus influxus* involved in the materialistic hypothesis and made the subject an *active* as opposed to a *passive* reality. But Leibnitz did not mean to shut out a real "knowledge" of the external reality which he said could not transmit its processes into the mind. It appears to some thinkers that he did not provide any way to insure this external "knowledge." But his doctrine of "occasional causes," which was virtually identical with the idea of efficient causes, and the assumption that all the monads were qualitatively alike, differing only in degree of kind, provided an instigating influence for inciting mental states, while the identity in kind of the monads insured an identity of their action, so that a foreign

origin for "knowledge" was obtained and a principle of identity insured for adjudging the nature of things. Whether he was correct or not is not the problem here, but only the fact that he provided for the "knowledge" of external reality consistently with his doctrine of spontaneity. Hence though objective reality could not transmit itself into the mind, it could be "known" as more than a sensation or as something subjective and ideal. In other words, whatever defects the Leibnitzian idealism had, it attempted to establish a subjectivity which was consistent with objectivity, if it did not actually imply it. Is not this an intimation of the reason why Kant links "subjective" and "objective" together in connection with space?

The logical influences leading Kant into the denial of both the Leibnitzian and other conceptions of space and the affirmation of its ideality are as clear as they are inevitable. He had at one time accepted the philosophy of Leibnitz with its tendencies toward the Boscovitchian points of force as an explanation of all reality, whether material or spiritual. But Kant saw that, if "knowledge" had to be instigated by the causal action of the external world, itself spaceless in so far as space was supposed to be a "property" of it, this relation or fact could not be "known" in the same way that matter was "known," because it was no part of the causal agent and was not itself an active reality. As a consequence, therefore, the association of space with matter in experience had to be the result of functions not connected organically with matter, not transmitted to the mind by it in sensation, and not caused by the external "relation," an inactive thing or fact between the monads, but the product or "percept" of the mind's own action. There was no alternative for Kant to the conclusion that spaceless things could not produce space "perception" in the same way that sensation was produced and that an inactive thing could not produce it.

Now Kant did not accept the totality of the Leibnitzian doctrine. He returned to the materialistic conception, or assumed the materialistic point of view in his doctrine of the "receptivity of sense" (Receptivität der Sinnlichkeit) in which external objects (äussere Erscheinungen odor Gegenstände) were *given* (Gegeben), and retained spontaneity explicitly only for the understanding (Verstand) and reason (Vernunft). In this way he obtained an external world of "sense" without the spatial accompaniment and made this latter subjective. To the man who looks at the doctrine that matter consists of spaceless points of force as absurd, there would be no difficulty in accepting the objectivity of space as necessary to the "knowledge" of matter, inde-

pendently of the question how it was effected. But to the man who accepted the doctrine of Leibnitz and modified it to the extent of admitting receptive functions for the "knowledge" of an external reality that was *per se* spaceless, there was no alternative to the conception that space was a subjective product or "percept" added to sensation and giving "matter" a "phenomenal" character or appearance. Space not being a "property" of matter nor an active thing, could neither affect the sensorium nor be "known" as such a "property." The subjective act would either envelop the "empirical reality" precisely as the Leibnitzian "relation" enveloped the monads without being a "property" of them, or "perceive" space without supposing that space had itself produced any effect on the subject, but was simply incited in the mind without any transmission of causal influence from without. In declaring it objective Kant showed that he took the latter alternative.

This return to the realistic conception of sensation, as opposed to the Leibnitzian idealism, thus making it receptive as did materialism, carried with it the existence of external reality, that is, the objective *genesis* of sensation, even if it be afterward regarded as subjective in *nature*. This is to say that, though it has an objective origin, the genesis is not to be interpreted as necessarily carrying with it a presentative conception of the reality "known," as one form of realism and of materialism maintained, but may consist with the idea of efficient causes producing effects which do not represent their nature. This view of objective genesis but subjective nature supposes that reality is not "known" by the principle of identity but is objective nevertheless, as implied in the idea of efficient or "occasional" cause. Now when this conception of the possible relation between "knowledge" and reality is once assumed, namely, that externality may be affirmable or "known" without being materially presented in "perception," we may ask whether Kant's view of space may not be somewhat similar, minus the conception of external influence in producing it. He refuses it an objective origin and thus seems to make it subjective in a more radical sense than sensation. But the contention here is that he may have intended it to have a subjective origin with an objective import. How can this possibility be made clear or plausible? We might answer this question with the assumption of the mind's spontaneity in its space "perception" (Raumanschauung), but Kant does not explicitly permit us to make this assumption, except as implied in a few statements. He only distinctly and explicitly applies spontaneity to the systematizing function of the understanding (Verstand) and to the idealizing or

speculative function of reason (Vernunft). Of course, taking space as neither "real" (substance or attribute of anything) nor a "relation" between things conditioned by these, and conceiving it as conditioning matter of which it was not a "property" passive or active, he could not suppose that the "perception" of it was effected as that of matter was produced, and so had to make it *nil* and an illusion, or an *a priori* "intuition," whether he chose to regard it as in any way presentative or not.[1]

But though Kant does not so explicitly indicate the interpretation suggested, let us see whether it is not forced on us from the very nature of his assumption in regard to the nature and limits of sensation, or the objective phenomena of sense. We must remember that he has said that space is infinite and not a "property" of things in themselves. The "properties" of matter inhere in it and do not extend as attributes beyond its limitations, Kant having at least implicitly abandoned the Cartesian view of matter as filling all space and returned more or less to the atomistic or monadistic conception of it as something limited. Now this matter, or objective world, made itself "known," or produced sensations, by acting on the subject. That is, matter acted on us by virtue of its properties which in fact represented

[1] Two references suggesting that Kant had this supposed spontaneity of sense in mind may be quoted. In the first "Allgemeine Anmerkungen," speaking of the phenomenon of the rainbow, he concludes: "So ist die Frage von der Beziehung der Vorstellung auf den Gegenstand transcendental und nicht allein diese Tropfen sind blose Erscheinungen, sondern selbst ihre runde Gestalt, ja so gar der Raum, in welchem sie fallen, sind Nichts an sich selbst, sondern blose Modificationen oder Grundlagen unserer sinlichen Anschauung." The fact to be specially remarked is that "Raum," like sensations, in one respect at least, is a "modification" of the mind. If Kant does not mean to suppose a difference between sensation and space in this passage he has no right to his "reine Anschauung" and hence contradicts his main doctrine. But it can be admitted that he does not intend any such contradiction while we call attention to the evident desire to regard space "perception" as some kind of *active* function.

The next passage is in the second "Allgemeine Anmerkungen." Speaking directly of space and time and their precondition of all "experience," he says: "Nun ist das, was, als Vorstellung, vor aller Handlung irgend etwas zu denken, vorhergehen kann, die Anschauung, welche, da sie Nichts vorstellt, ausser sofern Etwas im Gemüthe gesetzt wird, Nichts anderes sein kann, als die Art, wie das Gemüth durch eigene Thätigkeit, nämlich, dieses Setzen iher Vorstellung, mithin durch sich selbst afficirt wird, d. i. ein innerer Sinn seiner Form nach." The expressions "eigene Thätigkeit" and "durch sich selbst afficirt" are explicit recognitions of spontaneity in sense, and possibly many other statements might be found implying the same. The position is certainly implied in his general doctrine.

that action on us, and which in physical parlance would be called forces (Kräfte). As space is explicitly affirmed by Kant *not to be a "property"* of matter in itself (Dinge an sich), a fact implied by its infinity, if "property" is made convertible with finite inhesion, we can readily see that space cannot, on Kant's assumption, act on sense. Only "properties" of objects are "known" in that way, namely through the "receptivity of sense." Hence there is no alternative to the assumption that space has a purely subjective origin as a "perception," and the only question that remains is whether it has an objective import other than as a fact of consciousness which we can contemplate as any other mental state.

Now as space is not a "property" of things, as an "intuition" it must be a function or "property" of something, and its ideality without objectivity would make it a function or "property" of the subject. But, as seen, its infinity must imply either that this subject is infinite or that space has an objectivity of some kind, one or the other. Kant has not affirmed the former, and cannot do this without supposing a "thing in itself" with a "property" which he has expressly denied of it. Hence we are left with "Hobson's choice" of objectivity of some type. Kant cannot attribute this infinity to matter as "phenomenon," since he must limit this to the finitude of experience or sensation, and having denied it of "things in themselves," he must suppose that this objectivity is of a fact which is not a "property" of matter, nor a relation depending on matter as a prius, nor an active agent on sense (Sinnlichkeit). But for the fear that he would have to suppose it a substance or an attribute of something else than matter, Kant might have asserted the objectivity more clearly, though his view of sensation would require him still to make the "perception" of it an *a priori* subjective act. But the interpretation thus indicated puts the conception where it is in science generally, in which it is conceived as a condition of the existence of material reality, the only difference being that, with Kant, it is incapable of causing any impressions on sense, that is, any "intuition" (Anschauung) externally initiated. The denial that it is a "property" of things prevents it from being thus externally initiated, according to Kant's limitation of sensory impressions, and thus determines its subjective *origin*. Its infinity prevents it from being purely subjective in *nature* and from being a property of "phenomena" which are limited to the finite, and hence in some sense it must have objectivity, whether presentative or non-presentative. We have seen as a fact that Kant speaks of it as both subjective and objective without feeling that he is describing it in

contradictory terms, and that the Leibnitzian philosophy apparently makes this possible. This is intelligible, however, only on the supposition that he is not assuming the usual antithesis between the two terms, but is thinking of subjective action and objective import.

The position just taken is more or less confirmed by interesting remarks by Kant on a point not often, if ever, mentioned by students and which apparently deny the conclusions above conjectured. The first of these passages occurs in the "Eläuterung" on Time, and the second in the "Allgemeine Anmerkungen." Kant complains that the assumption of the "absolute reality" of space and time, whether "subsistent or inherent," supposes two eternal and infinite "Undinge (Raum und Zeit)," which exist without being real (wirklich) and only for the sake of incompassing all reality (alles Wirkliche).

I shall not quote the whole of the second instance in which the same thought is repeated with emphasis, but simply refer the reader to the whole of the *third* "Allgemeine Anmerkung." In this passage Kant is repudiating the accusation that his doctrine results in making space and time illusions (Scheine), and asserts that: "If we take space and time as properties that ought to exist in things themselves, in order to make them possible, and then survey the absurdities in which we should be involved in having to admit that two infinite things, which are not substances, nor something inherent in substances, but nevertheless must be something existing, nay, the necessary condition of the existence of all things, would remain, even if all existing things were removed, we really cannot blame the good Bishop Berkeley for degrading bodies to mere illusion."[1] Then Kant adds that our own existence would fall with such suppositions.

I repeat that the first appearance of these passages is that they are directly opposed to the contention that I have put forward as a possible interpretation of Kant, and they apparently deny in the clearest terms the "reality" of space and time. But before admitting the

[1] "Wenn man den Raum und die Zeit als Beschaffenheiten ansieht, die ihrer Möglichkeit nach in Sachen an sich angetroffen werden müssten, und überdenkt die ungereimtheiten, in die man sich alsdenn verwickelt, indem zwei unendliche Dinge, die nicht Substanzen, auch nicht etwas wirklich den Substanzen Inhärir endes, dennoch aber Existirendes, ja die nothwendige Bedingung der Existence aller Dinge sein müssen, auch übrig bleiben, wenn gleich alle Dinge aufgehoben werden, so kann man es dem guten Berkeley wohl nicht verdenken, wenn er die Körper zu blosem Schein herabsetze."

It should be noticed that in this passage the word "Dinge" is used where in the first instance "Undinge" is used. This throws light upon Kant's conception of the problem.

force of this, which I grant is at least apparent, let me call attention to an interesting circumstance. It is the fact that the realist always thinks that it is Kant's ideality of space that gives rise to all the absurdities (Ungereimtheiten) in the problem. No one ever seems to have dreamed of the absurdities that Kant apparently indicates are self-evident on the realistic theory. They have all seemed on the other side. Why then has Kant so confidently affirmed them when they have not been apparent at all to others?

I think that this question can easily be answered. Kant has wholly misapprehended the contention of epistemological realism. He was dealing with metaphysical or ontological realism. Whatever philosophers may have supposed that space was a "substance" or the attribute of some substance other than matter, they are certainly not those who gave the meaning to epistemological realism. Clarke held that space was the attribute of some substance, and Leibnitz evidently knew writers who did the same. But epistemological realism, as the result of nominalism and of the reaction against Berkeley, not only used the term "real" as denoting anything external to the mind, whether substantive or not, but conceived the problem of "knowledge" to concern the way of "knowing" anything beyond consciousness, and was not primarily interested in the nature of the thing "known." Hence Kant was using language which was intended to deny ontological realism when, to later English thought it appeared to deny epistemological realism. I agree that if space and time are to be considered either as "substances" or as "attributes" we fall into all sorts of absurdities but I maintain that, whatever the aberrations in the occasional use of language may be in forgotten thinkers, it has not been characteristic of historical and epistemological realism to assume that space and time were "substances" and possibly only Spinoza, Clarke, and a few others had the audacity to declare them attributes. What epistemological realism has stood for is the fact that space is not an illusion of the senses, nor a subjective creation of the mind. It has supposed that space exists in some way external to the mind and body. Kant had simply confused the two different types of realism. This is evident in the fact that he thought he was dealing with the same issue in the denial that space was "real" and at the same time in the denial that it was an illusion. Moreover Kant should have remarked also that realism has not identified itself in all cases with the doctrine that all "knowledge" is *presentative*, that is, an application of the principle of identity in some form to the relation between sensation and the qualities of what it supposes is external. Realism has committed itself in general only

to the fact of external existence in order to escape solipsism, and divided into two schools, the one making "knowledge" of externality direct and presentative and the other indirect and non-presentative. Where space and time have been concerned, this latter school, which Hamilton calls the "hypothetical realists," has perhaps been no more explicit than Kant on the question whether they are presentative or non-presentative of external nature. But they would all agree with Kant in accepting the absurdity of the views which were so ridiculous to him. They simply spoke of them as conditions of the existence of outer reality, precisely in the same sense in which Kant makes them the "conditions of external phenomena" (Bedingungen der äusseren Erscheinungen).

As a second point to be made, a critical examination of the passage quoted will show that all the absurdities grow out of Kant's statement of the case for which epistemological realism of any sort is not responsible. Kant supposes that the absurdities grow out of the assumptions that space and time are active properties (Beschaffenheiten) of "things in themselves" and are yet neither "substances" nor "attributes" inhering in substances, but the necessary condition of the existence of all things. I agree as to the absurdity of supposing them properties of that which they condition, but it is not the conception of epistemological realism. Kant is confusing the doctrines of Spinoza and Cartesian realists and assuming them to be the same, while he is apparently ignorant of the philosophic movement which was a reply to Berkeley and Hume. I doubt whether Kant could have named a single realist who ever stated or conceived space and time to be either active properties or limited static properties of reality. It is possible that the philosopher can be asked to consider such a question in the problem of "knowledge" as based upon the causal influence of objects of it. But as no philosophers except the Leibnitzian type have regarded matter as spaceless the question did not naturally arise, and Kant's problem could hardly suggest itself until that point of view was advanced. Until Leibnitz put forward his monadistic system with its dependence upon spontaneity for "knowledge" of all reality, and also for constituting the very nature of reality itself, the question of space and time, and of all facts of "perception" resolved itself into two problems: (1) the *origin* of "knowledge," and (2) the *meaning* of it. Or are things mediately or immediately "known"? It was not whether they were "perceived" or "known" by a causal influence on the subject, but whether they could be "perceived" or "known" in any way whatever. Epistemological realism supposed a causal agency in the pro-

duction of *sensation* and not necessarily of "*perception*" *materially* considered. Hence it was not bound either to suppose a causal influence of space on the subject as a condition of being "perceived" or to limit "perception" to the subjective state. But Kant assumed that no "knowledge" was possible except through a causal action on the subject, unless it was *a priori*, and then between the subjective nature of such an act and the absence of objective causes for its object had a confusing situation for both idealism and realism. But he should not have confused epistemological and ontological realism in such a way as to suppose that the usual doctrine of space involved the simultaneous assertion of its being a "property" and a "condition" of things. Its conception of it as a "property," when this was supposed in any sense at all, was merely that of a predicate affirmable of it and not as a function of its activity, though the dynamic theory of matter may even do this. There was no contradiction between this view of it and the assumption that space is the condition of material, or even of any other, reality. We have only to take the form of statement which Kant adopts for phenomena to show the truth of this position, since what is supposed to "condition phenomena" ought not to suggest an absurdity when applied to noumena, as the term "condition" is not supposed to imply causality of an efficient or creative sort in either case. That is, in both the realistic and Kantian theories, the relation expressed by "condition" is static, not dynamic, whether applied to noumena or phenomena. But Kant is trying to accuse realism of assuming that space and time are dynamic properties of things as a condition of being "perceived" and that they are at the same time the static prius of the existence of these things. This, of course, is absurd enough, but that it is the doctrine of the ordinary epistemological realism is an illusion of Kant's, or of the Kantian philosophers.

There was an apology for Kant's way of putting the case in his time, as there were metaphysical theories of space and time which epistemological realism since then has not been required to consider. Consequently I am here providing against the interpretation of the Kantian philosophy as solving the problem which epistemology has now to discuss, though I am also endeavoring to show that the very confusion of Kant grew out of the transition to this point of view and admitted into it conceptions which may have to dominate modern doctrines. He had to mediate between ontological and epistemological realism, and if he had distinguished between them, he might have indicated more clearly a position that would have been less puzzling.

The real objection to this interpretation of Kant, implying that his doctrine is a form of epistemological realism, will be found in those statements regarding space and time in which he seems to deny absolutely all objectivity to them whatsoever and which seems to be the logical result of more equivocal assertions. I refer to two of them as clear illustrations. The first is near the beginning of the first "Allegemeine Anmerkung." He says that: "If we think away the subject or the subjective form of sense, all qualities, all relations of objects in space and time, nay space and time themselves would vanish. They cannot exist as phenomena in themselves, but only in us."[1] The second statement to which I call attention is near the beginning of section twenty-three in the "Deduction der reinen Verstandesbegriffe." He says: "Space and time are valid as conditions of the possibility of objects as given to us in experience, but they are nothing more: for they belong only to the sense and have no reality beyond them."[2] There are very many other similar statements, though perhaps not so definite and clear in their real or apparent denial of *all* objectivity to space and time, as presumably affirmed by the realist. There are many that are equivocal because their interpretation is subject to all sorts of ambiguities in such terms as "Anschauung," "Erscheinung," "Vorstellung," "Gegenstand," "Ausser," etc. But taken generally with what is understood from the intention of the system as reflected in conceptions that cannot be discussed here, the impression is overwhelming that the interpretation which I have presented as a possible one is not within the meaning of Kant.

I am not going to dispute the *apparent* force of the facts or statements just noted, nor shall I be so confident that I have penetrated the mysteries of the Kantian doctrines as to claim more certitude for this interpretation than the possibilities involve. But I think that I can reinforce these possibilities by some important qualifications of the passages which have been quoted and which are, perhaps, the strongest that Kant has used, while I refer to one or two statements by him apparently contradictory but quite consistent with the view that I am here taking of his probable thought.

[1] "Wenn wir unser Subject oder auch nur die subjective Beschaffenheit der Sinne überhaupt aufheben, alle die Beschaffenheit, alle Verhältnisse der objecte im Raum und Zeit, ja selbst Raum und Zeit verschwinden würden, und als Erscheinungen nicht an sich selbst, sondern nur in us existiren können."

[2] "Raum und Zeit gelten, als Bedingungen der möglichkeit, wie uns Gegenständegegeben werden, nicht weiter, als für Gegenstände der Sinne, mithin der Erfahrung. Ueber diese Grenzen hinaus stellen sie gar Nichts vor; denn sie sind nur in den Sinnen und haben ausser ihnen keine Wircklichkeit."

The first qualification is that they are strong only in their isolation. We must not forget that Kant's terminology is such that its meaning cannot always be determined by the most obtrusive considerations, which are the common currency of the ideas expressed by the terms. I think that I have shown this in those passages which I have endeavored to interpret in the light of previous and contemporaneous philosophic conceptions. I apparently relied upon isolated passages for the interpretation which I have given, but in fact I chose them only as most favorable to the illustration of the method by which I think Kant *must* be judged. Their paradoxical and apparently contradictory character were precisely the statements whose meaning could be made evident only in the light of the philosophy which influenced the development of Kant. It is the same with isolated statements which seem to be opposed to the interpretation that I have been presenting. They must be understood in relation to the whole, or at least in relation to the ideas that Kant once accepted and was now giving up. Whatever we think of Kant's *Kritik* we must treat it as a unified system or a chaos. To assume that it is a chaos is to refuse to study the psychology of a mind that has all the appearances of being systematic. The fact that Kant, whether rationally or not, made his system turn about the distinctions between noumena and phenomena, sense and understanding, the subjectivity of space and time as opposed to their "reality," not necessarily to their objectivity, shows some kind of unity that is worth ascertaining, if for no other reason than as a means of discovering the apparent inconsistencies in it. Of course, if we can find any principle that will give the system a larger unity and intelligibility than is on the surface, or remove the difficulties which many have in the study of it, the result may be worth the pains. Hence, for the reason just mentioned, namely, the evident existence of some ruling conception which determined the whole complicated doctrine, we must endeavor to ascertain just what unity or consistency and contradictions it contains. To do this we cannot rely upon isolated passages alone for either proving or disproving an interpretation. We must study the system in the light of the philosophic conceptions which certainly determined Kant's fundamental ideas in their content and which will make the interpretation intelligible and possible.

Following out this method in regard to the passages quoted, I wish first to call attention to a minor matter that may be of some value, at least of a conditional kind, in the understanding of the psychological and logical influences operating unconsciously on Kant's mind. This is his use of the terms "Wirklich" and "Wirklichkeit." He uses

them, at least apparently, as interchangeable with "real" and "reality." This convertibility of the terms may be disputed, unless by actual definition we clearly indicate their identity. Lotze remarks that "Wirklich" in the German language implies *activity*, whether as effect as related to a cause, or as action which brings about this effect. In the history of philosophy, "real" and "reality" have as often, perhaps most generally, had the implication of *static* existence of some sort. This conception would enable us to describe space and time as the realist does, and as Kant evidently intends them to be described. On the assumption of his difference between "real" and "wirklich," we can well understand Kant's repudiation of the objectivity of space and time in such statements as I have quoted, especially as the only activity that he supposes in "knowledge" is the activity of objects in which space does not inhere as a "property," but of which it is a "condition," and also the pure activity of the understanding which unifies experience, and possibly the pure activity of "intuition" (reine Anschauung) as the origin of space "perception." That is, space and time as *static* realities do not and cannot act on sense, even if we suppose that sense "perceives" them as external objects of "intuition." This is clear in one passage in which Kant asks how it is possible to have an experience of absolutely empty space (Denn wer kann eine Erfahrung von Schlecthin-Leeren haben?). That Kant may have had this conception of "wirklich" is quite possible when we observe the unconscious influence of Leibnitz on his thinking, as is definitely admitted in his use of spontaneity, especially as this general conception influences him in all but the *receptivity* of sense, and even in his conception of the causal action of objects on the subject which must be active to produce sensations. I shall not urge the case, however, solely on the strength of his possible use of "wirklich," as this may savor too much of a logomachy and because the real fact, which lies behind these isolated passages that I have quoted and that have their meaning determined by it, is Kant's doctrine of the "thing in itself." The whole question of what Kant means by the ideality of space and time, and of the interpretation which I have here advanced, as connecting him more closely with epistemological realism than he and his defenders usually suppose, depends on this conception of a "thing in itself" which lies at the basis of his system. I shall have to traverse the whole problem again in the light of this idea.

It is impossible to repress a smile as I approach this subject of the "thing in itself," after the floods of commentary and discussion that center about it. The subject reminds one of the famous passage in the

Kritik about truth and the foggy ocean which we must traverse in search of it with more or less assurance of shipwreck and failure. But I am not going to engage in any elaborate philological investigation of Kant's statements to elucidate this perplexing doctrine. I shall state it in general terms and allow the student to examine and verify the case for himself.

The first thing to remark in any attempt to say what Kant meant by "Dinge an sich" is in the fluctuating conception which he himself took of them. This is most apparent in the modifications which were introduced into the second and later editions of his work. Every student will recall the discussion on noumena and phenomena in the first edition, omitted in the second and later editions, which distinctly indicate that Kant at one time conceived "Dinge an sich" as the *causes* of phenomena. The omission of this in later discussions shows greater consistency in his doctrine, and intimates at the same time that he intended to abandon that idea. He found that he could not maintain this position, namely that they were the causes of phenomena, the condition of their being "known," and still assert that they were "unknown." He had only gradually moved from the metaphysical to the scientific state of his thinking and in the transition he carried the conceptions of the one over to the other when they should have been abandoned. He had been the victim of that philosophy which had retained the superphysical world as any explanation of all things after it had admitted the supersensible physical world at the basis of natural "knowledge." The superphysical world above space and time was the "thing in itself" and so at first the ultimate cause of everything. But the admission of causality into the physical world as the agency causing sensation, against Malebranche's "seeing all things in God," made it necessary to abandon the "Ding an sich" as the basis of "knowledge," and to reconstruct the whole problem. In the explanation of "knowledge" Kant started with the doctrine of the subjective *nature* of sensation in respect of its character as a mental act, but with an objective origin, and with this assumption he saw that he must take the view that it was non-presentative of the nature of reality. This made the distinction between the "nature of things" and their "appearance" necessary, so that if we should identify "knowledge" with the subjective states we should have to say that we did not "know" the "nature of things," but only their "appearance." To escape from any such statement we should have to give that definition of "knowledge" which extended it beyond mere *having* mental states to the "perception" or intuition of a transcendental

reality. Kant never gives us as definite a notion of this as he should have done, but whether he did so or not is indifferent to the question as to what suggested the limitations of "knowledge" to the non-presentative realist. In this view, as with Kant, reality was considered as the cause of sensation or "phenomena," and it was quite willing to admit a sense in which we did not "know" things. This sense was that of *having* them "in" consciousness though objects of it. For "knowledge" it did not require to go "behind" this cause for anything else deeper, unless this cause gave evidence of being an effect, and when it went "behind" such a cause it did not find it necessary to transcend space and time to obtain what it was pleased to call the Absolute. It was content to suppose a reality that transcended all *dependent* reality, not any and all reality that might show equally independent character. It might or might not stop with "God," just as it pleased. But in so far as mediate or immediate "knowledge" was concerned, it could stop with a "nature" of things not given in sensory data, simply because these were assumed to be non-presentative. Anything further depended on the discovery of relativity to causes in this "nature" of things. It was this tendency in general philosophic speculation to seek something more transcendental than the supersensible object of sensible experience that gave rise to the idea of a "thing in itself" above space and time, and having once accepted this with the assumption that all else was "phenomenon," mode, accident, it was difficult to get away from this habit of thought when the cause became the supersensible object of experience. In other words, Kant never distinguished between presentative realism and scholastic transcendentalism, on the one hand, nor between non-presentative or hypothetical realism and the ontological realism, on the other, which he was combating.

It was the influence of another philosophy than epistemological realism, whether of the "common sense" or the hypothetical sort, that produced Kant's conception of the "Ding an sich." It was the residuum left after he had studied Leibnitz and Spinoza and forgot to abandon after he had denied their doctrines. Spinoza taught him to conceive the "Absolute" as a prius of both physical and mental attributes, and hence as a prius of space and time. Leibnitz at least apparently taught him to believe in spaceless and timeless points of force as the basis of both mental and physical phenomena. These phenomena were given in "internal and external sense" (innere und äussere Sinnlichkeit), and were not representative of "things in themselves." Kant thus came to accept "realities" which not only

transcended sense "knowledge," but which also transcended space and time, and then identified these "realities" with the non-presentative objects of the hypothetical realist who had never been implicated in the metaphysics of either Spinoza or Leibnitz. When he finally limited objective "knowledge" to sense, which the assumed realism of the Spinozists and Leibnitzians did not do, he ought to have given up the existence of any "thing in itself" and he would have had no trouble in his problem. He actually did abandon it logically when he said that it was "unknown," but he still clung to "things in themselves" as facts after he had abandoned the evidence for them, namely, their causal action on the subject, and made his conception of them nevertheless the basis of distinctions that were both unnecessary and misleading, because they were distinctions between nothing for "knowledge" and all that it did know. It is curious to call such a conception a limiting or defining concept (Grenzbegriff), and quite as curious also to call it a "begriff" of any kind after he had said that a "Ding an sich" was both "unknown" and indefinable!

Now to put this in common English, Kant, abandoning the view of Leibnitz that all activity originates with the subject and returning to the materialistic conception of sensation, started with the conception that we "know" things by virtue of their "properties" which are activities on sense. Then with the view that space and time were conditions, not *active* "properties" of things and that "things in themselves" are spaceless and timeless, while space and time were "known" as facts in sensory experience or "intuition," Kant could only say that they were not properties of "things in themselves" and hence the last could not be "known," space and time being the conditions of both "knowledge" and reality. Consequently, for "knowledge" these "things in themselves" could have no properties whatever. This was precisely what Kant had to mean by his "Ding an sich," and he indicated as much when he abandoned its causal influence on sense. For "knowledge" it had to be an entirely *propertyless reality* because, on the one hand, it was not an object of sensory experience, and on the other, was spaceless and timeless. This propertyless reality, though regarding it as "unknown," in spite of its acceptance as a fact, he confused with the non-presentative nature of things of the epistemological realist which was admittedly "known" as an object of judgment but not of sense. That is, Kant had two sets of "Dinge an sich," one a spaceless and timeless "reality" beyond all sensory "knowledge" and the other an "objective reality" which had properties capable of affecting sense but not *presented* in it. His

conception was, as will be shown later in detail, that sensory "knowledge" was caused (efficiently) by objects, but that the sensory ideas did not represent or present the object directly to consciousness as "intuition," following the Leibnitzian postulate that nothing could be transmitted into the subject. This latter reality, the "object" of one form of realism, Kant admitted to be "known" at least in some sense, though he does make it clear how we "know" it, as he did not consciously introduce into his *Kritik* the principle of Sufficient Reason for the purpose of explicating his position, after having asserted in the *Nova Dilucidatio* that it should supplement the Principle of Identity in the problem of "knowledge." The Principle of Sufficient Reason was tacitly assumed and used in the explanation of the origin of sensory experience and the causal influence of "objects," but it was not analyzed and explicitly developed in a way to show the relation between the subjective and objective aspects of "knowledge."

One of these "Dinge an sich" Kant obtained from *a priori* metaphysics and the other from the psychological interpretation of sensation and its cause, and supposed from the process of abstraction connected with both of them that he was dealing with the same reality. As the former is a non-entity for "knowledge," it must be thrown out of all consideration in the problem of epistemology and all propositions whose meaning is determined by the assumption of such a conception must be treated accordingly. This means that the distinctions in Kant's philosophy which are based upon the assumption of this non-entity must be declared useless. Hence in order to criticise or understand the Kantian doctrine of space, we have neither to defend the proposition that space and time are "properties," or "relations," or "conditions" of things in themselves in this transcendental sense, nor to suppose the existence of such things at all. The only "Ding an sich," if the phrase be tolerated at all, which we need assume is the "objective reality" of the non-presentative realists which Kant actually admits as the cause of sensation. This makes his position, whether you call it idealism or not, convertible with one form of realism, and the only question that remains is, whether he accepts any doctrine of the "objectivity" of space. Let us examine this question somewhat further.

Owing to the double origin of Kant's conception of "Dinge an sich," the metaphysical origin of one and the psychological or epistemological origin of the other, the denial that space is either a "property," "a relation," or a "condition" of "things in themselves" also has a double import. In connection with the former, it is not

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only a truism, an implication in the very conception of them both as "unknown" and as spaceless and timeless, but it also implies that these so-called "properties" have *absolutely no relation whatever to them.* In connection with the latter, it does not mean that they have no relation to "reality" that is "known," but that they are not active "properties" of it, that is, not activities of sense, though related to "objects" precisely as realists of all shades of belief have maintained. That this is the fact is clearly indicated by his calling it a "condition of external phenomena" (Bedingung der äusseren Erscheinungen), and his constant assignment of "objective reality" to the causes of sensation, even though it was qualified by terms associated with idealism. There was an equivocation in his use of the term "phenomenon" (Erscheinung) which I shall notice again and which shows that he had in mind the conception that I wish to defend. But it is most noticeable that he does not speak of space as a "property" of "external phenomena," but only as their "form" or "condition." There is an apparent exception to this statement. It is in the "Transcendental Exposition of Space." He says, speaking of it, "this predicate is attributed to things in so far as they appear to us, that is, as objects of sense." This, however, it should be remarked, does not speak of space as a "property," but only as something *predicable* of things as "phenomena" (Erscheinungen), while it is conceived as a "condition" of them as "objects" precisely as the realists of the epistemological type, and many of the ontological type, have maintained. But though he assigned space this relation, did he intend to regard it as objective or external in any sense? The answer to this question must combine several considerations, and among them must be a careful examination of Kant's conception of "phenomena."

The first answer is the question whether any one is willing to maintain that Kant accepted solipsism. If he did not, he admitted the externality of something other than his sensations. It is apparent in his system that he *did* hold to objective existence other than himself, even if he made this objective existence nothing but the personal consciousness of another, and any man who goes this far has no absolute criterion against the affirmation of other external reality, if its credentials are shown to be as good or the same as that which he believes, and which was accepted as a condition of having sense experience at all.

Having found that Kant does admit an external reality, as a datum of sense, we then ask what he meant by "phenomenon" (Erscheinung) and "object" (Gegenstand). Did he regard these as objective,

or *merely* subjective mental states in their nature non-presentative of external reality?

The answer to this is simple and clear. (1) Kant's use of the term "phenomenon" is equivocal. It is very generally identified with sensation (Empfindung), on the one hand, and with "object" (Gegenstand), on the other, sensation and object not being intentionally identified at any time. Sensation Kant regards as a subjective mental state not like the qualities of objects and objects as the efficient causes of sensation. The idea that his "phenomenon" was "only appearance" without anything appearing is a misunderstanding of Kant's real doctrine, as I think is quite evident from the next consideration. (2) Kant constantly identifies "phenomenon" (Erscheinung) and "object" (Gegenstand), and he as constantly refers to "objects of sense" in which he indicates that they are not sensations. He is even very careful to say that "Erscheinungen" are not illusions (Scheine), as students of him well know. He constantly speaks of objects affecting sense, so that his conception of them is that of *causes* of sensation, not the subjective states themselves. This gives them objectivity in a perfectly rational sense of the term as external to the subject, and as they may be non-presentative in nature we have in "Erscheinung" and "Gegenstand" precisely the objective realities which were the "Ding an sich" of the hypothetical or non-presentative realists. (3) Kant actually defines "Erscheinung" as the "indefinite object of perception" (der unbestimmte Gegenstand der Wahrnehmung), in which he both identifies "Erscheinung" and "Gegenstand" and implies that, though "Erscheinung" is a datum of sense, it is not always used to denote the sensation itself. The qualification "unbestimmt" indicates the abstraction of the subjective side of sense with the retention of a supersensible object and implies the same indefiniteness which the idealists generally like to charge against realists when these do not define their "real" in terms of the principle of identity. The trouble with Kant was that he forgot the equivocal complexity of sense (Sinnlichkeit) which, as representing subjective states, was a combination of sensation (Empfindung) and apprehension (Anschauung), and as representing the "knowledge" of external objects was a combination of sensation and judgment, the latter not being explicitly indicated by Kant. On the contrary, while it is Judgment that should have been his source for reality, objects of sense, he admits constantly that it is sense (Sinnlichkeit) through "Empfindung" and "Anschauung," or these together in "Wahrnehmung," that external objects are given. Sensations give or are subjective states, and "intuitions," which,

though subjective acts, represent the "perception" of objects and are not the direct effects of external causes in the same sense that sensations are. We may discover in this the key to the solution of the problem almost in Kant's own terms. Having found that he admits in "Gegenstände" an external reality other than mental states and that he applies the concept of objectivity to space we have to ask in what sense he does this.

The answer to this question involves several observations and in the end a possible qualification with which the objectivity of space is admitted. (1) "Empfindung" gives sensations which are externally instigated but subjective in their nature: "empirische Anschauung" gives "objects" (Gegenstände) which are objective realities acting on sense: "reine Anschauung" gives space and time, and the question remains whether these are objective also and related to "Gegenstände" as realists suppose without their being "properties" of objects acting on the subject. (2) Now "Gegenstände" affect sense by virtue of their "properties" which are dynamically conceived after the Leibnitzian philosophy to be activities in some form. Through them and the sensations they produce "empirische Anschauung" obtains external reality or objects. I would add to this, what I think Kant would admit, namely, that it is the category of causality that must be implicated in "empirische Anschauung." (3) Space being infinite is not a property of matter (Gegenstände), and, whether infinite or not, is not an active function, but a static condition or predicate of it, and consequently cannot affect sense. The result is that, if we "perceive" it at all, we must do so by virtue of an "*a priori*" or spontaneous function of sense, not stimulated by external objects but instigated by the sensation itself. This is Kant's "reine Anschauung." Does it give external reality to its object? (4) All "intuitions" (Anschauungen) give objectivity, whether representative of the real or not and in spite of their subjective origin and nature as mental acts. Only "Empfindung" gives pure subjectivity. "Anschauung," which is considered as an *act* of the subject, has reference to external reality without regard to origin and simply because it is "intuition." Hence the case can be summarized as follows:

"Empfindung" has an *objective origin*, but a *subjective meaning;* "empirische Anschauung" has an *objective origin* and an *objective meaning;* "reine Anschauung" has a *subjective origin*, but an *objective meaning*, as well as a subjective. The consequence is that we have two functions here for objectivity instead of the one general act of sensory "perception" as ordinarily conceived, the two being

made necessary by Kant's conception of the limitations of reality in respect of its "properties," and possibly made necessary on any theory of the external world. But the complication of space "intuition" with the language of subjectivity in its genesis and meaning as such a product with the same description of sensation which did not represent reality in any sense made it difficult to understand any objective import in space "perception" without explicitly remarking that all cognitive consciousness involved this assumption, a view concealed here by the fact that it is possible Kant did not want the "percept" of space, to be any more representative of real space than sensations were of objects, though it is equally possible that he did wish to admit that the space "percept" was more or less representative.

The only objection that can be brought to this interpretation of Kant, and most readers would no doubt consider this as fatal, is the fact that Kant so persistently speaks of space as *nothing* apart from "phenomena," as I have already remarked, and that it would vanish if it were not for the "subjective" conditions of sense. This conception is supported by his view that space "perception" may not hold for other forms of conscious beings, and that we do not know certainly whether it holds good for animals, but only that it is valid for all men. Such views seem quite clear, though one may ask the sceptical question how Kant knows that all men have an "intuition" which he so constantly describes as "subjective" when the same term is used to describe sensations which he explicitly indicates may not be universal. The most emphatic statements on his doctrine are in the section on "Transcendental Idealism as the Key to the Solution of Cosmological Dialectics," where it would seem that the pure subjectivity of space was affirmed and its objectivity wholly denied. But in this very discussion he uses language that is flatly contradictory unless we explain it on the assumption of the interpretation which I have proposed. He first speaks of all "phenomena as modifications of sense" and then disputes the right of any one to identify this conception with that of dreams. In reply to such an interpretation of his view he then says that his doctrine of transcendental idealism permits "that the objects of external intuition, just as they are perceived in space, are also real, and that all changes in time, just as presented in the internal sense, are real. For as space is the form of that intuition which we call external and as no empirical conception can occur without objects in it, so we must suppose extended realities as real in it, and so also with time." Then immediately in the face of this he says: "This space and time, and together with them all phenomena are not *things* in themselves,

but nothing except presentations and have no existence outside our minds." These statements are either contradictory or they are intelligible only on the assumption that it is the presentations that are subjective while the "real" is objective, whether represented by the subjective or not. As evidence of this, on the very next page Kant says that "the non-sensible cause of these presentations is totally unknown" (Die nichtsinnliche Ursache dieser Vorstellungen ist uns gänzlich unbekannt). Here we have his two "Dinge an sich" in one, its objective existence admitted, and its relation to "perception" asserted. It is evident that Kant's real conception of the case is simply that our "experience" or sense presentations are regarded as objectively caused, efficiently not materially, but are materially what the subject makes them, just as the Leibnitzian point of view would consider them. Whether they represent reality as it is will depend on the view we take either of the process of "perception" or of the nature of the subject. If the subject is sufficiently like the object to act in the same way the presentation may represent the object rightly. If it is not like it the presentation may not represent the object, and to secure the proper "knowledge" of the object as it is, we should have to endow "perception" with the function of *seeing* facts as they are without reference to the mode of its initiation or the question as to the nature of sensation, thus distinguishing between sensation and "perception" in this way. Unless Kant does mean this in some way, it is perfectly absurd for him to speak of "objects" (Gegenstände) affecting sense when he is as constantly repeating that "objects" are the affection or modification itself. He either assumes what I state of his real position or he does not know what he is talking about in this free use of equivocations. What Kant ought to have seen clearly, and to have admitted as frankly, was that he either could not use the language of subjectivity about space at all or had to give up the distinction between space "perception" and the phenomena of dreams and hallucinations, a distinction which he insisted on retaining and gave no reason whatever for it. If he had remained on the premises of the Leibnitzian philosophy he could well have insisted on pure subjectivity of everything without supposing any objectivity whatever. But having returned to the position that sensations were caused from the external world he should have seen that his subjectivity implied objectivity of some kind, and indeed he did see it, but did not use the fact as he should have done. We have found in later knowledge that even illusions, hallucinations, and dreams have their objective import, being the resultant or effect of secondary stimuli and differing from normal sensations only

in their non-coördination with the usual and normal cause. With us subjectivity always implies some objectivity, even though it be non-presentative of it.

The real crux of the case lies in Kant's *point de repere* for employing this language of subjectivity at all in relation to space. It was his peculiar conception of "Ding an sich" which involved the double absurdity (1) of transcending all "known" reality and yet deserving a place in the theory of "knowledge," and (2) of limiting "knowledge" to "experience" while reality or the "Ding an sich" was the cause of that "experience." That is, if all that is "known" is sensible and the categories have no objective application he can neither assert the "unknown things in themselves" nor suppose them the cause of sensation. What Kant should have seen and emphasized was that it is one thing to *sensibly* "know" a fact and it is another to *cognitively* "know" it. This distinction was implied in his reference to the "thing in itself" as the cause of sensible "experience," and was apparently implied in his doctrine of the categories, especially that of causation. But as his causality was nothing but coexistence and sequence made necessary, not efficient, in everything but the production of sensation, and hence nothing but the systematization of "experience," all his grounds for objectivity of any sort were baseless, though it is clear that he asserted the fact of it. One of his main difficulties was his abstract limitation of sense and understanding. He spoke of them as if they were separate functions, and having assumed that sense handed its data over to judgment for systematization he forgot to note that, in addition to synthetizing "experience" the judgment explained it by the category of causality, and thus used the principle of objectivity to make sense and the subjective rational. If then we find that we can reduce the idealist to the dilemma between solipsism and the admission of some externality and show that Kant is in agreement with that realism which asserts objective reality without assuming that its "nature" is presentatively given in sensory states, we have a position in which Kant's "Anschauung" as a purely subjective act, not directly stimulated from without by space because it is not a "property" of matter but only a static condition of it, can have the *meaning* which should be given to all "intuition" of whatever origin or nature in his system, namely an *objective*, though possibly not presentative or representative, import, whether that meaning be given by direct "perception" or only by causal implication involving the immanency of judgment *in* sense experience, explaining it as well as synthetizing different experiences.

Let me summarize Kant's doctrine. I have shown that he fluctuates between the "things in themselves" of the ontologists, which by his own definition of them must be wholly unrelated to "knowledge," and the "real" of the epistemologists who suppose a causal relation between reality and consciousness, but a relation that was *not* the transmission of the "nature" of objects into consciousness, not a presentation of matter by material causes, but an efficient or occasional cause of the sensations without constituting them. That is, Kant fluctuated, in his conception of "things in themselves," between a *propertyless reality* which is *absolutely* "unknown," and a *causal reality* which was *relatively* "known." But as there is perhaps general agreement that the former conception is useless, the existence of the latter makes Kant a realist in regard to the fact of external or objective existence not *presented* in consciousness, and an idealist in regard to the *nature* of sensation and at least the *origin* of space "perception." The only question that remains is whether he conceived space as externally real in some sense as other than a mere mode of consciousness. The distinction that he insisted upon between sensation (Empfindung) and "intuition" (Anschauung) and the statement that space was objective while sensation was only subjective would make it a consistent supposition that this "intuition" could represent a content that might be either presentative or non-presentative, according as the facts required us to believe. If consciousness could assert the existence of "things in themselves" which were "unknown" and spaceless, there should be no difficulty in conceiving that "intuition" could give a reality which had no causal relation to the subject but which was incited on the occasion of sensation. The fact that "intuition" was another function than mere sensation permits the supposition that its capacity extends to the seeing objects that are not presented *in* the sensation. This is to say, that it may be of the very nature of "perception" to intuit or to assert something not consciousness and not *in* consciousness in any other sense than that it is an object of it and, in the proper sense of the term, "outside" it. The reality may be presentative or non-presentative, just as we please, the main thing being that all objectivity is meaningless unless one or the other is conceded, and it is within the Kantian system to make it objective in one sense.

With this outcome of the development of the problem of "perception" as a process and especially in connection with the idea of space, let us see how the phenomena of binocular vision affect both the Berkeleian and the Kantian doctrines. There are just two things to discuss

in the problem. There are (1) the question of the nativity and (2) the question of the ideality of space "perception."

I shall confine the discussion of the first of these questions to the problem of solidity or the third dimension in the field of vision. I shall assume for the present and for the sake of argument that plane dimension is "in" the retinal image and that the fact guarantees the nativity of space "perception" for that dimension. I shall also assume for the sake of argument that the absence of the third dimension from the image creates a perplexity in the problem of "perceiving" it. It was all very easy and plausible for Berkeley and his followers to try to explain this "perception" of the third dimension in vision by association of tactual and muscular experiences with certain signs in vision, since they assumed the necessity of the presence in the image or "impression" of the quale to be naturally seen, if its "perception" was to be supposed a native function of that sense. But they were ignorant of important optical facts which indicate an agency for seeing what is not presented in the image. Brewster's and Wheatstone's work in binocular vision, showing that the "perception" of the third dimension was connected with the existence of disparate images on the different retinas, suggested the existence of an organism for the native "perception" of distance which Berkeley did not suspect, all this work having been done after his time and also after that of Kant, who seems not even to have been aware of the possible significance of Berkeley's theory of vision for his own views. We know that the work of Brewster led to the invention of the stereoscope and that this instrument was designed to illustrate precisely this organism for the "perception" of solidity where it was actually not in the "object." The same effect can be produced by the artificial combination of retinal images in the use of the naked eyes. Such experiments represent the drawing of figures of the same character except with that degree of disparateness which would be true of images from solid objects in normal vision and the fusion of their retinal images by crossing of the eyes or artificial convergence. The effect is in general the same as with the stereoscope, except that the perspective by artificial convergence and fusion is the reverse of that by the ordinary stereoscope. But in both we observe the "perception" of the third dimension when it is not in the object and when it is not in the image. I cannot reproduce all the facts and experimental illustrations showing this result and so must refer the reader to the experiments themselves.[1]

[1] *Mind*, Vol. XIII., pp. 499–526; Vol. XIV., pp. 393–401; Vol. XVI., pp. 54–79. *Psychological Review*, Vol. I., pp. 257–273, 581–601; Vol. IV., pp. 142–163,

The experiments recorded and described in these references exhibit the fact that geometric figures can be so drawn as to produce binocular parallax similar to that of solid objects in the retinal image and that the effect on the "perception" of distance or solidity is the same as in solid bodies. The simplest illustration is that of two oblique lines drawn sufficiently far apart and more or less in vertical directions so that either artificial or stereoscopic fusion is possible. Their obliquity must be slight so that, when the fusion of one end with the same end of the other is effected the remaining points in the lines will be near enough corresponding points lying in the median plane to stimulate a tendency to their fusion. This will bring out the appearance of a line, lying not in a plane horizontal to that of the retina, but in a plane cutting this, the fused single line appearing to lie in the third dimension, with one point nearer and the other farther from the observer. The same effect can be produced by concentric circles except that it is a little more complex, the result being a frustum of a cone. The circles must be drawn in two sets each of two or more circles not having the same center and drawn symmetrically so that stereoscopic or artificial fusion will show the parallax necessary to elicit the "perception" of solidity. Now it is noticeable that fusion by convergence of the eyes on a focal point between the circles and the eyes results in a frustum of a cone with the larger and smaller base in one relation while fusion by focal convergence beyond the plane of the circles reverses this perspective or relation of the bases, showing that the act is an organic one and not associational. These figures can be varied in many ways and forms with the same general results in regard to the third dimension, but they are all simple variations of stereoscopic vision which can be tried by any one with greater ease than artificial convergence. A more striking incident is that of localization with reference to the point of fixation in attention rather than the point of physiological convergence. If two circles are drawn for stereoscopic purposes and then fused by artificial convergence they will, as we know, appear to be a single circle. If a pencil point be placed at the focal point of vision it will appear to be located in the same plane. But if placed beyond the focal point it will appear double, and if attention is now concentrated on these double images it is noticeable that the circle which before appeared at the focal point now will appear to be located beyond the pencil point and on the plane of the paper on which the real circles

375–389. Leconte, "*Sight.*" See list of Literature in Helmholtz's "*Physiologische Optik*," II. edition, pp. 1282–1295. Also the work of Hering, Aubert, Wundt, Stumpf, Lipps and Martius.

are drawn. If then the attention be returned to the circles and withdrawn from the pencil points the latter again appear beyond the circle and this at the focal point again. Here we have a condition in which the position of an object in the third dimension is determined by the variations of attention without any muscular or motor variation of the eyes. In all there is evidently an organic function for "perceiving" the third dimension. Wheatstone showed with sufficient conclusiveness that the "perception" of solidity was accompanied by the existence of disparate images from solid objects and these diagrammatic experiments just described, show the same fact under conditions favorable to the proof of the influence of this disparateness and with variations that indicate a native function for the "perception" of solidity, a function at least apparently distinct from every form of association and inference. Whether it is properly so or not I shall examine presently. But what I wish to note first is the fact that this solidity is not present in the image on the retina. We may say that it is *represented* there by the binocular parallax or disparate images. This is true that there is something in binocular images different from the merely monocular, but this difference is not identical with the difference between plane and solid dimension though it elicits the latter in "perception." The difference is purely a matter of parallax in plane dimension or magnitude, while the "perceived" quale is the third dimension. In such cases we undoubtedly *see* what is not in the "impression." That is, there is no presentative correspondence between the "sensation" and the quality seen. The nativity of it is apparent in the uniform fixity of the "phenomena" and such variations as exhibit that uniformity in accordance with the alteration of conditions and not an alteration of effects with the same conditions. That is, the relation of localization and perspective are determined by the nature of the parallax and not by inferential considerations. Association and inference ought to make the result variable and capricious under the same conditions. That is, if association and inference be the source of the third dimension in such cases the perspective of solidity ought to involve localization as alterable as it is in monocular vision where geometrical figures, on account of mathematical perspective, and pictures, on account of light and shade, as well as mathematical perspective, can have their form and apparent solidity seen very much as we please. Take the case of the geometrical cube as an illustration. We can see the cube in more than one position, if we think of the way we wish to see it. Also geometrical figures representing a tube or tunnel, which can be made to appear with the small end nearer or farther

from us, according as we wish to see it, the perspective being inferentially or associationally interpretable as we please to see the representation. But this "phenomenon" does not occur in the experiments of binocular fusion of disparate images. The organic character of it and the variation of solidity according to the laws of fusion and the nature of the parallax show that it is natural and not associational either in the sense in which it is given or with the data of other senses. I do not care what may be said of its evolution. Anything may be granted in this field. I am concerned only with what it is now in the experience of the human race. This is simply that there is an organic function in vision for the "perception" of the third dimension without having it presented in the retinal image as a tri-dimensional quale but only as parallax in plane dimension.

I must call attention to an interesting difference between the experiments with geometrical figures and the facts of "perception" in normal cases of solid objects. In normal binocular vision there are two facts to be observed in regard to the "impression." One of them is the fact of parallax and the other a factor not involving purely geometrical considerations. In geometrical figures there is nothing but simple parallax. In the case of solid objects this parallax is accompanied by some slight difference, insensibly slight of course, of intensity in the light, relative or absolute, and also mathematical perspective, as compared with the common part of the images. This might be said to be an important factor in the clearness of the third dimension in normal visual "perception." While I admit that it may affect the result, at least unconsciously, either by association or in the "perceptive" act, it is evidently not the decisive factor in the case, because in the experiments with geometrical figures this difference of intensity of the light and mathematical perspective are absent while the "perception" of solidity is either quite as clear as in the normal vision of solid objects or exhibits its entire independence of those associational influences. That is to say, the "perception" of the third dimension is apparently not affected by any circumstances but that of mathematical disparateness and parallax, so that inferential factors, supposedly associated with variations of intensity and mathematical perspective, are either excluded from view or are merely secondary concomitants and supplementary efficients in the result, the primary being binocular parallax. In the experiments, therefore, with geometrical figures we have the clearest evidence, against the claim of Berkeley, of the nativity of the "perception" of distance without the presence of that quale in the image or "impression."

The associational theory is easily disposed of by the remark that there is no reason for denying that tactual and muscular space become associated with the visual quale which I have been discussing. Experience shows us in each sense certain indications of qualities in the cause which another sense gives directly. But this associability of certain facts in touch and muscular experience with the visual does not involve any identification of them with the visual in the Berkeleian sense that the tactual is transferred to vision by suggestion. What I am discussing is the visual quale *seen* directly and not its inferred or associated correlate in experience foreign to sight and which indicates the presence in the object of precisely that quale which sight sees. We may very well discover by experience that a certain visual fact is associable with a certain tactual or muscular fact, or indicative of its presence in the object, and yet not identical with it as a presentative "percept," though we call it a space content in both senses. But this does not exclude the nativity of the datum in each case while it admits that their synthesis is a product of experience. Hence I deny the associational theory by admitting it, so to speak, while refusing to accept its relevance to the problem before us, which is not whether the visual quale has no tactual or muscular correlate, but whether there is not a visual "percept" that may be called the third dimension in that sense, whether interpretable or not in the equivalents of other types of that experience. The visual quale has its correlate in tactual and muscular phenomena, but it is not constituted by it. The reason is that vision is our anticipatory and touch our protective sense, so to speak. Vision anticipates tactual experience and tactual experience is the test of what is and what is not safe. This fact always makes it necessary to interpret our visual experience in tactual correlates as a means of regulating our volitional actions and adjustments. But this utilitarian consideration in the process of development does not interfere with the nativity of the visual space quale any more than the associability of a taste with a color proves the empirical character of the latter. The question is whether there is a quale in sight which can be called space as well as one in touch to be called by the same name because it has the same meaning for action in both, and also whether it represents in the "impression" what is actually seen.

The same general conclusion can be shown in plane dimension for the sense of vision. We have assumed that plane dimension is given in the retinal image and that this might be the reason for its native "perception," but while we cannot escape the supposition that this datum is present there, in the sense that the conditions on the retina

are the same as external to it, yet there are two facts which must be considered in modification of the common idea of the case. First, the condition on the retina is not that of an image as it would be seen by another eye, in so far as we know about the matter. We suppose this only from our visual construction of what we see in the *camera obscura* where we are dealing with purely objective conditions. If, too, we could look at the retina from behind the scenes, as we can in the case of an eye taken from an animal, we might see an image. But this is no indication that the "impression" represents plane dimension. All of plane dimension involved is in the dimension of the retina affected and not in the conditions that evoke the "perception" of magnitude. The second consideration is an experimental one of some interest. It is the variation of apparent magnitude without a corresponding variation of the retinal image. I have also described this in the papers to which I have referred above (p. 310). The phenomenon represents the variation of magnitude of the frustum of a cone according to the focalization of the eyes and without any real alteration of the retinal "impression." If the eyes are focussed at a point within the plane on which the figures lie the bases of the fused figures appear smaller than the real circles, and if focussed beyond that plane they appear larger. Any stereoscopic figures will exhibit this effect. The image on the retina is such cases is not altered in its magnitude and conditions, and yet the visual magnitude of the object is modified, so that even plane dimension is subject to subjective influences precisely as much as the third dimension. That is to say, there is even in plane dimension a disparity between what is seen and what is in the "impression," thus confirming the general theory that "perception" does not require to have its quale *in* sensation in order to become aware of it.

If "experience," association, and "motor" phenomena are to be entitled to any consideration in the case, so far as my conception of the problem is concerned, they must be confined to the sense of vision whose data alone I am discussing, and simply for the reason that an associable tactual and muscular correlate is admitted in the case but refused the right to be considered the phenomenon in which we are interested. It is clear that within the sense of vision association does not determine the result or anything in it, except the possibility of a tactual equivalent associable with it, and this association is irrelevant when true. That distance in vision is a "motor" phenomenon in vision does not alter the contention here made, namely, that the "perceived" quale is not, as "perceived," a part of the retinal "impres-

sion." We may interpret "motor" phenomena any way we please. I am not concerned with the so-called theory of "motor" phenomena in the explanation of space "perception." The position that there is a visual quale for the third dimension is wholly independent of that controversy. On any conception of "motor" sensations, whether they are merely sensory facts involving the consciousness of motion or not, whether the function of "motor" centers is distinguished from that of sensory centers or not, the quale "perceived" as a result of binocular parallax or as a result of variations of fixation, is not presented in the image, and this fact is sufficient to prove that the visual "percept" is not similar to the datum in the sensory "impression." "Knowledge" transcends sensation and extends to objects.

This conclusion is very distinctly confirmed by the "phenomena" of upright vision, and in a manner which absolutely prohibits the influence of association with tactual and muscular experience. We know that the retinal image is inverted and that nevertheless objects are seen in their proper position and relations. I shall not repeat here the evidence of this assertion, but shall simply refer the reader to the proper sources.[1] We find in experiment that the line of reference for the localization of points in objects is in what may be called a line vertical to the plane of the retina, a fact that overcomes the inversion of the image in refraction of the rays of light. Phosphenes and Purkinje's experiment exhibits this law very clearly and conclusively. It is apparent in all of them, whether we appeal to association or not, an appeal that is shown to be false, that there is no principle of vision requiring "perception" to reproduce the relations in the retina in its judgment of reality. We at least apparently see objects as they are without any identity between the image and the reality. Whether we see objects as they are or not, we do not find the quale seen in the "impression." The act of "perception" is independent of this condition, even though incited by it.

It would thus appear that we can state a general conclusion against Berkeley, namely, that we can have objects of consciousness which are not "*in*" sensation and so not "*in*" consciousness as a state of the organism. Thus "perception" may transcend the states and affection of the sensorium. I do not mean by this form of statement to dispute the idealistic theory of "knowledge" which may still contend that the cognitive act is a distinct subjective function as creative of its "object" as sensation is a subjective reaction. The whole doc-

[1] Le Conte, "Sight," pp. 59–76, II. Edition. *Psychological Review*, Vol. IV., pp. 142–163.

trine of idealism, in so far as present contention is concerned, is indifferent to what is maintained as the result of binocular experiment. All that I am emphasizing at present is the discrepancy between the retinal or sensorial image and the dimensional quale "perceived." Assuming what we know of optics to be true this quale is not in the "impression," though "perceived," and though the whole process be "ideal" or subjective, there is nevertheless the difference between what is in the "impression" on the sensorium and what is "perceived," a fact which lends at least apparent support to the dictum that "perception" transcends the subjective in its determinations, certainly the subjective of sensation.

It is apparent how such a conclusion affects the whole doctrine of "knowledge" as formulated by those idealists who insist upon expressing themselves in language at least apparently implying that we cannot "know" anything other than our mental states, with a tendency to limit it to sensations and their systematization. Whatever it means it is certain that we can express the phenomena of vision which are under discussion only in language implying that we *see* what is not "*in*" the "impression" or sensory consciousness as sensation is usually called. Apparently the doctrine of realism is the only one that consists with this view.

But the idealist can put in a most interesting reply at this point. He can call attention to the fact that this very discrepancy between the "impression" and the "percept" is evidence that the quale is purely a mental construction. The "phenomena" and experiments that have been under consideration may be quoted as proving this fact and as showing the correctness of what is taken for Kant's doctrine of idealism while showing the incorrectness of Berkeley's view of the case at least in the assumption with which he conducted the argument. Thus while it is clear that the quale "perceived" is not, as such, *in* the "impression," the geometric figures chosen to bring this fact into clear relief also show that the quale "perceived" is *not in the object*. Plane figures are seen as solids, and lines in plane dimension are seen in the third dimension. That is, the "percept" is neither *in* the "impression" nor *in* the "object." Thus it would seem that the mind supplies the quale which is in neither the sensation nor the object, and consequently we should seem to have proved idealism instead of realism. The space quale seems to be a construction of the mind pure and simple, whether treated as *a priori* or empirical.

It is not easy to refute such a claim, and at least in so far as mere subjectivity of action is concerned, I am not interested in disputing it.

I am quite willing to admit the "ideality" of space, in the same sense in which the "ideality" of all mental states must be admitted, and if the facts force me to it, will admit it in any sense whatever, and so accept what is supposed to be the doctrine of Kant. But I must contend for the possibility that this subjectivity of space "perception" may consist with its objectivity in either the presentative or non-presentative sense. The "perception" of it, however, when it is demonstrably not in the object would seem to show either that it could not be presentative or that its objective existence would have to be made consistent with the denial of it as any quality or predicate of matter. Binocular parallax undoubtedly gives rise to the mental construction or "perception" of the third dimension, and shows, apparently at least, that space "perception" is a synthetic function of sense and not necessarily identified with it in all its forms and conditions, but there is nothing in this fact to prevent the supposition that the construction correctly represents an objective fact, especially when it is conceded that the quale is not necessarily a predicate of the object which stimulates the sensory state, as there will be no necessity for making its objectivity depend upon the consideration that it be such a "property." That is to say, the ideal construction may have an objective meaning, though it has a purely subjective genesis not in the "impression" and represents a reality neither in the sensation nor a property of the object necessarily. The only thing that the psychologist would have to do is to show that there is evidence of that fact. Transcendency of any sort having once been established, and transcendency of sensation is established in space "perception," even though it be nothing more than a synthetic function associated with sense, these limits must be defined before we can dogmatically assert that "perception" is characterized by the same subjective meaning as sensation, and if they are not equally defined, it is only a question of evidence to determine whether its meaning does not extend beyond the subjectivity of sensations. That is, may it not be possible that the mind is adapted to construct a quale which represents the actual facts, or some actually objective facts, in the external world, though these facts are not presented in the "impression" and are not "properties" of matter sensible or supersensible?

The first thing to be noticed in reply to such a question is the fact that the binocular experiments described and discussed represent a somewhat abnormal condition of vision, resembling in many respects the "perception" of objects through colored glasses. The fact that colored glass alters the appearance of things does not interfere with

their objectivity nor with the objectivity of their color as normally seen. It only alters the conditions under which they can be seen at all. I grant that such phenomena suggest important questions, but they do not eliminate objectivity even of the qualities that are thus distorted. The very fact that space "perception" is an additional function to that of sensation and may vary in its "percept," while that of color, sound, taste, etc., may remain constant, shows how the actual relations of objects may be distorted, as in a mirror, without denying their normal relation to "perception." If space were not possibly a variant with a sensational content, it would be otherwise, and to those who treat space as a "property" of matter the argument for its ideality might appear more cogent in such facts as I have mentioned in binocular vision. But the very fact that it is a synthetic function superadded to sensation only makes it possible for illusions to arise in this "percept" when there are none in sensations.

A further fact is of much importance in this connection. We should have solipsism to face, as I have already shown, if we made sensation, space and "objects" purely subjective. Now Berkeley and Kant admitted the existence of "objective" facts of some sort. Berkeley denied the existence of "matter" but admitted that of "spirit." Kant admitted matter or a non-sensible cause (nichtsinnliche Ursache) of sensations, and the existence of other individual centers of consciousness, or social persons. This he did in spite of his radical ideality of "knowledge," though I have tried to show that his position was that of hypothetical realism, which he would not have called this, as the real to him would have been a categorical implicate of causality, had he formulated the relation of cause to the existence or occurrence of sensations as he did to their synthesis. There is, therefore, in his admission the possibility that space construction only reproduces the quality of external reality, a conception rendered all the more conceivable from the discrepancy between sensation and "perception," the capacity of the latter for extension beyond the former being assumed in the very fact that its contents are not limited to the sensation. That matter should be conceded objectivity in spite of the subjectivity of sensation would only make it all the more imperative to recognize the tenacity and inexpugnability of space "percepts" for objectivity, especially when they are the data for giving what meaning objectivity has.

Somewhat suggestive evidence can be drawn from the general law of evolution. In this we find that there is a tendency of individuals to adjust themselves to environment in a way to resemble it in their

functional action. In some cases this even takes the form of originating the most positive resemblance in the subject to qualities in the object. This is especially noticeable in the phenomena of color adaptation, and even in some cases aspects of form resembling environment. In some cases this may require but a short time. The hare will change the color of its fur for summer and winter to suit its surroundings. If evolution effects such adaptations as this it is quite possible that it might develop in consciousness the capacity of "ideal" or subjective action which would represent correctly the nature of objective reality and present no other antithesis to it than is necessary to preserve individuality. This ought to be the less objectionable that Kant admits, as I have said, the existence of other persons like himself, which assumes resemblances between subject and object, and with the Leibnitzian view the action of the one simply mirrors that of the other, so that the subjective is a true representative of the objective. I do not think that this is a true description of the whole case, and because this is the fact it is difficult to show when the objective is correctly and when incorrectly represented. Besides there are antitheses between subject and object, and we have to be able to draw the line between what is subjective and objective in each case, and that may not always be an easy task. But I do not refer to the "phenomena" of adaptation to prove the correctness of objective "perception" nor to prove the resemblance between "impression" and object: for the difference between these has to be admitted on any theory. I refer to the fact only to show that evolution may so develop capacities that, whether like what they represent or not, may correctly report reality and it is only a question of evidence to decide whether it has done so or not. Besides it might even fail to make the cognition presentative and yet be correct in the assertion of objectivity. All that adjustment requires or may mean is that there is an objective reality to be reckoned with in "knowledge" and action, and whether it is presentative or non-presentative is a secondary question.

But it is the "phenomenon" of upright vision that offers the most distinct evidence of this adjustment and of the possibility even that "perception" may represent space relations correctly without being presentative. We have seen that the retinal images of objects are inverted, that is, the relative positions of points in these images are the inverse of what they are in objects producing them, and this can be expressed without assuming the space ideas of "perception," in so far as the argument here is concerned. We do not have to go beyond the "ideality" of these objects to recognize the fact. It is a fact on any

theory of reality. A double interest attaches to it. There is the radical difference between the sensory "impression" and the "percept" and the fact that the "percept" reproduces the objective relation and not the subjective. However much "ideality" we assign the act of "perception" in this case it reports the external and not the sensory condition. What is additionally interesting is the circumstance that the reproduction of the objective relations conforms to the tactual and muscular quale, according to the testimony of the associationist, so that we might even claim that the visual and tactual data are the same in kind, and thus an evidence of the nativity of visual space while we sustain its objectivity in spite of its "ideal" genesis. I shall not urge this view, however, as there are undoubted differences, whatever the resemblances between visual and tactual qualia. Possibly a further vantage ground could be gained by suggesting that our conception of the nature of the image or "impression" is indirectly secured by inference, so that the very assumption of what is subjective may be the wrong point of view with which to start in the interpretation of the phenomena, as examination may show that, according to the theory of physics and optics, that the "impression" is nothing but a mode of motion in the retina whose extended character is itself a matter of inferential construction, so that the "perceptive" act in transcending the subjective may correctly report the objective relation as it certainly does not report immediately the inverted relation of the "image" on the retina. But I shall not use this argument too insistently. The important fact is the adaptation of "perception" to the objective conditions, in so far as they are either comparable with the subjective or determinable at all. It is noticeable in this connection also that there are certain insects whose retina is convex instead of concave, according to the authority of Professor Le Conte, on which the image is upright and not inverted, and the evidence goes that, in spite of this convexity objects are seen precisely as we see them, the law of reference being in their eyes precisely as it is in the human eye, so that the line of direction in a convex surface is the same in effect as that in the concave, the image being in the one the reverse of the other. The adaptation of the act of consciousness to the objective in this instance seems anomalous, but after all is only according to the same general law, and confirmatory of the fact that objectivity is entitled to as much consideration in "perception" as subjectivity.

There is a way in which the apparent force of the binocular experiments which I have described as favoring the idealistic interpretation of space "perception" may be broken or modified. It is to note the

fact that the distortion of plane and solid dimension in the figures indicated not only represents an abnormal condition, as I have already remarked, involving the incoördination of distinct functions in vision, but also represents the phenomena of *localization* in space rather than the true "perception" of space. This is to imply that the real and true space is given in the properly "perceptive" act representing extension in the abstract, if I may so speak, and that the specific relation of objects to it may represent what might be called "empirical space," in Kantian phraseology, the sensory phantasm which is the sensational correspondent or correlate of what is essentially non-sensory in its primary nature. Thus in the variations of perspective and magnitude, according to the degree of convergence as described in the experiments, the space "percept" as a whole, the "pure intuition," remains constant while it is only the locus of objects in it that exhibits the variants. We may thus distinguish between localization and the real space "perception" which represents more than sensory data, while the synthetic character of this function added to the sensory, not implicated in it, exposes it to distortion and illusion. The experiments may therefore not be so conclusive as they appear against the space quale or reality of objects, especially as we have to admit that the conditions under which the "perception" takes place are abnormal, while the normal represent the result of evolutionary adjustment to the objective world. This sort of argument and reply may not be fully satisfactory, but it represents a fact which must be considered in the case, the more or less abnormal conditions under which artificial fusion takes place, even though the functions involved act normally, the synthetic character of the normal process being proved and liable to distortion when conditions change.

But the great puzzle for most minds is the real or apparent demand that we shall treat space as having a wholly "ideal" meaning, as having a merely "subjective" and not an "objective" or external reality, while the sensory data of color, sound, hardness, etc., if not representative of an external reality, have at least a meaning for the existence of something "external" to the ego. Of course Kant might hold to that paradoxical view of the world which so idealizes it because of his Leibnitzian conceptions involving the entire spontaneity of knowledge and the receptivity of nothing, on the one hand, and the spaceless nature of matter or reality, on the other, that is, its consistence in spaceless points of force, according to the conceptions of some of its exponents. Its nature was not imported into consciousness, though it could arouse in consciousness a cognition of its existence, but not in

its real character. It thus involved the idea that sensation implied or indicated objectivity even when it did not simulate or represent it in its nature. But the derivation of space from subjective intuition seemed to leave this "percept" without an objective meaning, simply because it was not evoked by the principle of causality as usually applied to sensory data. Sensible qualities were given an objective import, but space was not, and yet space was so inextricably interwoven with sense "percepts" that it seemed absurd or paradoxical to refuse it a similar objective meaning, and involved the strange conception that the external world was spaceless, though its spatiality seems a necessary implicate of its otherness than the subject, and that the total sense "percept" of consciousness, involving sensory and spatial qualia, is a synthesis of functions which are assumed to have different meanings, one of them having a reference to the objective and the other having no such reference.

From one point of view this position may be consistent enough. Kant's doctrine of the "receptivity" of sense involved him, consciously or unconsciously, in the materialistic interpretation of sensation, at least to some extent, whether he interpreted it from the principle of material or efficient causation. But Kant does not emphasize the position that his knowledge of external reality is based upon the principle of causality, though this conception of it is tacitly assumed in his theory of sense "perception." This is where he obtains his objective reference of sensation, that is, of the sensible qualities of matter or reality. But the principle of causality is just as tacitly excluded from space "perception," since this is said to be an *a priori* intuition of the mind superimposed upon the matter of sensation not contained. Thus the two associated functions of sensation and space "perception" may appear to be connected without having similar meanings for reality.

But two things are forgotten in this view of the case. The first is the confused conception of sensation which Kant holds. On the one hand, he conceives it as a "receptive" product, which, when strictly interpreted, implies that it is to be explained by the principle of *material* causality, the principle of identity, which would give its objective meaning to be the same as the subjective. This position would be that of naïve realism or common sense, in which external reality is as it appears, according to Kantian and other representations. This fundamental conception of "receptivity" is a departure from Leibnitzian ideas which excluded this transmission or *influxus physicus*, and involves this naïve realism, which, if accepted, might account for the synthetic relation of space to sensation or sensory qualities by im-

plicating it with the mode of causal action of reality without giving space any causal action itself. Kant, however, does not accept this view of "receptivity." After defining sensation as "receptive" he takes a view which is an abandonment of this "receptivity" altogether and in every strict meaning of the term. Hence the second thing that is forgotten is the fact that Kant still clings to the Leibnitzian notion that sensations are "phenomenal," that they are subjective reactions against external stimulus, that they are not representative simulacra of reality, but modes of mental action unlike the nature of the occasioning cause. This is an interpretation of sensation according to the principle of *efficient* causality, and assumes an ætiological but not an ontological relation between subject and object, that is, a causal relation without implying their identity, even though that identity be otherwise discovered to be a fact. This interpretation of sensation by the conception of efficient causation and excluding the material is an abandonment of its true "receptivity" and a return to the "spontaneity" of Leibnitz in so far as the *nature* of sensation is concerned, though not in so far as its *occurrence* is concerned.[1] But in spite of this view and of the return to the Leibnitzian conception it retains the belief in external reality which in the first conception depended upon the principle of identity in conjunction with that of efficient causality. But having eliminated the principle of identity, material causation, from the case, he had either to retain the judgment of objectivity in connection with that of efficient causality, or to accept solipsism. But refusing to accept solipsism, as Kant's refutation of idealism was meant to indicate, and assigning sensation an objective meaning or interpretation through efficient causation alone, Kant ought to have seen that he could take a new conception of knowledge, as the recognition of the principle of "Sufficient Reason" in the *Nova Dilucidatio* implied, supplementing that of Identity, and so instead of supposing that consciousness could not transcend itself, as it certainly could not do on the principle of identity, he could hold this transcendence on the principle of efficient causality. But once grant that it is the function of consciousness to transcend itself in knowledge, the only limitations which it will possess will be determined by the extent to which we condition that transcendence by the principle of efficient causality alone. If efficient causality represent the sole meaning of objectivity it would be impossible to assign space any objective reality so long as we denied its causal influence upon the subject. Space would be a functional action of the subject

[1] A clear statement of Kant's own point of view appears in his view of matter. "Transcendental Dialectic," Max Muller's translation, Vol. II., pp. 333–336.

on non-spatial objective "phenomena." So far Kant would be consistent, and we could secure objective reality to space only by assuming some other principle of objectivity than efficient causality alone.

But there are certain important facts which his system neglects to notice. The first is that the principle of efficient causality does not necessarily involve the judgment of external reality in all its functional applications. It also determines the existence of the ego or internal reality and shows no tendency in doing so to conceive it objectively. Consequently, existence other than the fact to be related may be affirmed without necessarily involving externality or objectivity of a spatial character. How then does the mind ever discriminate at all between the internal and external, the subjective and the objective, as Kant did? Why should not all our judgments be solipsistic? The reply to these questions comes back to the fact that efficient or other causality is not the sole principle of objectivity. Objective reality has more meaning than efficient causality, though this be one of its elements when matter is concerned, so that the transcendency of consciousness, while it is guaranteed in one relation by the principle of efficient causality, may involve functions that assert it without applying such causation as its sole condition or determinant. How can this be done?

The first answer to this question is that, if space were not an objective fact of some kind, there would be no reason whatever for the variations of magnitude and distance which we observe in connection with sensations. There ought to be perfect constancy in our notion of magnitude and distance, since the nature of the sensory impression is and must be regarded in the Kantian view as of a uniform character in its qualitative aspects. The Kantian must assume that spatial qualia are no intrinsic part of sensation or of its object and so cannot be any part of the impression or stimulus, but that they are superadded or synthetic additions to sensory "phenomena" or phantasms, additions to data not containing them. Hence sensations will be conceived as having a uniform quality and will vary only in degree of intensity. But there is no apparent relation whatever between the quantitative aspect of sensations and the spatial qualia associated with them, as there should be if these qualia were expressions or correlates of intensity in sensory data. The causes of sensation must, therefore, exist in some relation that affects the mind in a way to call out or occasion the spatial quale in a particular form, and that relation may as well be called objective "space" as anything else, though subjective "space" be unlike it in character, just as physical "color" and "sound" are

supposed to be unlike physical "color" and "sound." On any other condition, all space relations in sensation ought to represent a qualitative uniformity which they do not do in fact. If the mind determines the whole spatial quale without any reference to the conditions of external reality it should represent it with some such uniformity as the specific nerve energies represent sensation which are constant in quality and vary only with variations in the objective reality. Hence variations in the space qualia or relations independent of quantity and quality in sensations suggest an objective relation of some kind other than the assumed non-spatial dynamic activity of matter. Magnitude and distance bear no known relation or correlation with either the quality or the quantity, the nature or the intensity, of sensations, according to the necessary conceptions of the Kantian, applying non-spatial causality to one and excluding it from the other. Hence it would appear that the variations of this fundamental product of consciousness are in some way correlated with variations and relations in reality which are presumably not a part of the content of sensation. This would suggest that spatial qualia have some meaning beyond consciousness or sensory phantasms, and evolution, of whose significance Kant could take no account, comes in with its principle of adjustment to environment, a conception excluded from the Leibnitzian doctrine, to render probable an objective explanation for space qualia, even though we do not make them representative in consciousness of that which is implied.

The force of the Kantian view, as usually conceived and defined, depends on assumptions that are derived from the Leibnitzian philosophy. This system made the transmission of impressions from without impossible. That is, the external world could not be causally admitted into the internal world, and hence the "phenomenal" nature of what was "known," and the "unknown" or "unknowable" was beyond. This conception of the case gave rise to the assumption, either implicit or explicit, tacit or conscious, that we could not "perceive" what is not in the sensation. When, therefore, the external world is conceived as spaceless in its real nature, it cannot produce a spatial quale in the impression by any ontological influences, as these are not even admissible for matter, and both the ontological and the ætiological agency of space is denied, even though it be accorded an objective existence. Consequently space "perception" will appear as an *a priori* subjective function and phantasm or intuition, supposedly not representative of any corresponding objective reality for the reason that there is no assumed causal action to evoke it. But if consciousness transcends itself, as it were, in applying the

principle of causality as explained, so that it is of the nature of consciousness in certain conditions to affirm something not in the impression or sensation, and if the principle of causality in its purity does not necessarily imply what is known as an external world, there must be some other function for discriminating between the internal and external, and this is in fact the conception of space. That this function of consciousness exists is clearly illustrated in the binocular "perception" of the third dimension, as has been indicated, where we do not assume a corresponding or representative relation to causality in the object or in the contents of the sensation, as usually conceived. Here the mind "perceives" what is not "in" the sensation and transcends itself, as a "phenomenal" occurrence, in positing its object. This is to say that space can be produced or posited without being a part of the impressions or sensations associated with it, that is, without entering into the material content of the impression from without.

But I shall be told that this is precisely what Kant wishes us to consider it and that we have not secured its objectivity until we have shown that space is a part of the external reality which acts causally on the subject. It is supposed to be purely subjective only because causal action is denied to space, both ætiological and ontological, and it is said to represent no part of the sensory content imported or occasioned by material reality. Assuming that the object does not transmit its properties or appearances to the subject and that space cannot act on the subject at all, as it is not a "property" of the object, according to Kant, the objectivity of space will seem to depend, not merely on "perceiving" what is not "in" the sensation, but also in "perceiving" what is "in" the object though not causally active and what is assumed to envelop and to be independent of the object and yet not acting causally on the subject. But if, in seeing space, we seem to see what is really or apparently not a property of the object, it would appear that the spatial qualia are wholly subjective and do not refer to a corresponding objective reality.

Now this seems to be the fact in the binocular "perception" of solidity or the third dimension, especially in artificial fusion of images in plane dimension. That is, objects that are demonstrably not solid at all on any theory of space appear to have a third dimension. That is, we seem to see what is not in the object as well as not in the sensation, a fact which would seem to imply that the spatial qualia are subjective constructions only and without objective meaning.

The first thing to consider in reply to this view is that, in conceiving an objective reality for space, we are no more obliged to represent

it as objectively what it is subjectively than we are obliged to suppose subjective "color" to be the same as objective "color." We are not any more required to apply the principle of identity to space "perception" than to the "perception" of sensory qualities. We may suppose the same sort of differences between subjective and objective space that we assume between sensation and the qualities or conditions that give rise to them. All that objective space requires to be is some relation in which things exist and that will account for the peculiar way in which they are seen when the sensations will not account for it and when it cannot explain the variations in the spatial qualia associated with sensations.

The second point in reply is that it is easy to misunderstand and to misrepresent the import of what is apparent in the binocular phenomena that seem to illustrate the "perception" of what is not in the object. The "perception" of solidity, when the objects are known to be geometrically plane figures, is properly speaking a problem of *localization* in a spatial continuum not wholly determined by the figures concerned. We do not really see a solid object in such cases, but only two plane figures localized in the relative positions which the superficies of a solid object would represent. *The real spatial qualia, magnitude and distance, are the same whether the figures are seen as plane or solid*, and the appearance of the latter under certain conditions is only a matter of localization under anomalous and abnormal circumstances *in* a spatial continuum which is not determined by either the function of localization or by the fact of the particular stimulus, especially when this localization involves the maladjustment of the functions of sensation and of space "perception." I do not dispute the real or apparent distortion of the supposed spatial relations of objects under these conditions or that they are seen to be or to appear in a different form from that which is their proper character. Nor would I dispute a subjective character for space quite like the subjective character of all sensory "perceptions," in so far as they are "phenomenal" reactions. But what I am trying to insist upon is the view that there is some condition or relation objective to the mind besides color, sound, hardness, etc., which may be treated as the correlate in reality of what we call space in "perception." The continuum representing the condition for giving any plasticity at all to appearances and not in any way determined by the limitations of the physical object involved is that important fact which requires as much consideration as the distortion of localization. We do not absolutely require that we should see the spatial quale in the object, but that we

should see the object in the spatial quale. This is in fact the way in which Kant conceived the relation even when he says that space was purely subjective. He had returned to the physicist's point of view in conceiving space when the Leibnitzians had departed from it. The physicists had always conceived space as the condition of the existence of matter, but Spinoza conceived it as a property of matter inhering in it and though Leibnitz did not exactly take this view, at least in so far as form of statement is concerned, he did not treat it as a condition in which matter existed or as necessary for that existence. The Spinozists could say that space existed in matter and so that matter conditioned the existence of space. The Leibnitzians might say that matter existed in space, but they had to maintain that it was not an inherent property of matter and in no respect conditioned its existence or action. Kant departed from Spinoza when he denied that space was a property of matter and he departed from both Spinoza and Leibnitz when he maintained that it was a prior condition of the existence of matter. But Kant did this with a distinction which we must not forget. He held that space was not a property of matter "in itself" (*materia noumenon*), while he did not deny that it was a property of matter as a "phenomenon" (*materia phenomenon*). But he ought to have seen that "phenomena" could have no properties whatever, in any sense of the term "property" as he used it to describe the power of matter to affect the subject. For it was through its properties that it produced impressions and became known while he could not consistently say that it was "phenomena" that affected the subject, since they were the effects, the things "known," the subjective reactions of the mind elicited in response to the activities, properties (Kräfte) of matter external to us and in itself not transmissible to the subject. But if "phenomena" can have no properties whatever in any proper sense of the term affecting the theory of knowledge as Kant implicitly conditions it, we should have to exclude the sensory qualities as such, even as correlate attributes or actions, from external matter, and we should have reality wholly propertyless, a conclusion which would result in solipsism for psychology and virtual nihilism for matter. But if we are to suppose that space is a property of "phenomena" and that it sustains the same relation to them as it sustains to matter in the conception of physics generally, and if at the same time we assume that "phenomena" or sensible qualities imply properties in reality affecting the subject, whether they are as they seem or not, it would seem very anomalous that this which has no objective reference should yet condition the existence of that which has such a refer-

ence! Kant ought to have avoided the conception of conditioning "phenomena" by space intuition and so not to have imported into the mental the analogies of the physical unless he meant to carry them out to the full extent. If he was going to exclude space from objective reality in some sense he should also have excluded its conditioning relation to "phenomena" and to have treated space merely as a synthetic accompaniment of sensory "phenomena" and no more necessary to them than to reality. But having accepted physical analogies for expressing the relation of space to "phenomena" in order to set aside the Spinozistic and Leibnitzian conceptions, that is, by saying that "phenomena" are in space instead of saying that space is in "phenomena," and then giving "phenomena" an objective reference when their condition, which is purely subjective by assumption, ought not to admit their objective reference, he ought to have seen that it would be no violation of philosophic principle to admit a relation for reality which might go by the name of objective "space" as a condition of our being affected at all by this reality. That is, reality may exist in the same relation to objective "space" that "phenomena" sustain to subjective "space," and it should do this if space is a condition of "phenomena" instead of a mere synthetic associate of them, to say nothing of the inconsistency of admitting that space can be a property of "phenomena" while "phenomena" are conditioned by it, that is, seen in it! A mental process which can treat space as a condition of "phenomena"; which can conceive it at the same time as a property of "phenomena"; which denies it is a property of external reality, and which gives a constructive form to "phenomena" having an objective reference while it itself has no such reference, though obliged to accept variations in sensory data not consistent with the constructive fixity which space should have in the theory, is certainly very anomalous.

But the facts of binocular vision seem to indicate that there is no reason for supposing what Kant assumes, namely, that space quality is a condition of "phenomena," as the third dimension is not apparent in the sensation with which it becomes associated. That is, so far from having a spatial quale of the third dimension in it, this quale is excluded from it, and hence it would appear that the very condition of treating space as subjective would be its exclusion alike from the "phenomenon" and the reality and so its exclusion from the conditions of sensation. But what Kant sees is the fact that space extends beyond the sensible boundaries of reality and is not implicated in the limitations of reality's causality, and hence, supposing that space "perception" is not elicited by the causal action of an objective cor-

relate to matter and its properties, he assumes that it has no such reality external to the mind as the variations of sensation seem to suggest. But when we come to the fact that objective "space," if "perceptible," at all, must be "perceived," independently of the objects which it incloses and which cannot, on the Kantian theory, determine its whole meaning; when the binocular phenomena which seem to represent it as neither "*in*" the sensation nor "*in*" the object, are implicated in the phenomena of localization and possibly not properly or wholly the "perception" of spatial qualia *per se;* when we consider that there is no excuse for the variations of spatial qualia except for certain peculiar relations of the object apart from its causal action; and when the doctrine of evolutionary adjustment is applied, as Kant could not admit this from his Leibnitzian affiliations, environment and its influence not being admissible in this philosophy as either affecting the nature of reality or the origin of "knowledge" — when these are considered, we may discover that there is nothing to oppose, but everything to favor, even when it does not prove, the position that in some sense space is objective, though it be much in the same sense in which color, sound, etc., are objective. Then remembering that we may not be required to apply either the principle of identity or that of causality in determining all objective reality, but a principle that either accompanies or lies at the basis of both of them, namely, the principle of difference, if only that of numerical or mathematical difference, *numero alia*, we may find that more fundamental function of consciousness by which it transcends itself in its judgments of reality. That is, the very function which determines when objective causality shall be discriminated from subjective causality, sensations and their objective import from internal states and their limitation to the subject, must involve more than abstract causation, and in making this discrimination, while it conceives time and space as enveloping "phenomena" and extending beyond them, it will have no reason for denying solipsism except the conception of the spatial exclusion (*auseinander*) of the object from the subject, which is all that space need imply in its objective aspects.

Consider, then, that the facts of binocular vision, like those of smell and perhaps other sensory "experiences," may show that space intuitions do not condition "phenomena" and that we may perhaps "perceive" what is not in "phenomena" or any part of their content as sensation; that space "perception" is a synthetic function accompanying and not conditioning sensation; that the variations of spatial qualia have no definite correlation with certain qualitative and quantitative variations in sensation; and that the law of adjustment involves the

conception of objectivity distinct from, even though related to causality, we may have good reasons for assigning spatial qualia some form of objectivity or meaning and reference to it, though we may concede that objective "space" is not causally related directly to "perception" and though we do not interpret the "percept" by the principle of identity. This will depend upon the question whether we limit the judgment of reality to the application of causation to sensation not containing spatial qualia. But if we can "perceive" spatial qualia not in sensation and not caused either by the sensation or the object there is nothing to interfere with the "perception" of space in the object without a corresponding causal agency, especially when taking account of the principle of adjustment to environment in the process of evolution which intends that the functions of the subject shall have a meaning for reality even though that meaning involves the assumption of a difference in kind.

In conclusion, however, two things are clear. The first is that the "perceptive" act transcends sensation, that is, "knows" more than the "impression" or what is usually called "experience." The idealistic formula can be accepted only with a qualification, and this is that "knowledge" involves or implies more than what is "in" the sensation, not being limited in any such way as Kant asserted, except in a formal manner. The second fact is that objectivity is in some form a necessary postulate of rational thinking, whether it be the result of Judgment or "Intuition" or the combination of both. Objectivity may be given in the application of the principle of causality, as we have already seen, but it would not assume a spatial form. Space "perception" simply gives it definiteness and meaning, and more especially the individuality which is necessary in a cosmos of independent centers of reference. While space is not constituted by points, the mutual exclusiveness and coexistence of points or positions in space are the best representation of what space means for us in the determination of externality, as this is the way we think of objectivity for objects in relation to each other. Space thus gives definiteness to the causal judgment and completes the notion of externality. But in both the cognitive judgment and in the "perceptive" act there is some sort of transcending of consciousness in the belief or assertion of reality that is not "in" the mind.

In this conclusion, however, I do not find it necessary to maintain that the object "is" what it "appears" to be. The presentative nature of "known" things or objectivity is not necessary to the "knowledge" of them. No doubt "common sense" does just as Kant asserts, namely, takes the "appearance" for the "reality" with-

out any reflection as to what "appearance" is. It is not necessary, however, to sustain this naïve realism as a condition of asserting objective reality. I am quite willing to concede the idealistic contention that we "know" things only according to the way we react on their action upon us. Whether they reveal their "nature" in our sensory "percepts" of them is immaterial to the problem of "knowledge." This may mean in the last analysis, as I have already indicated, that all that we "know" of reality is what it *does*, and that what it "*is*" is what it does. We do not require to "know" more. The desire to "know" what it "is" in any other sense is born of the indolent disposition to draw deductive inferences regarding the future instead of studying nature inductively. Besides the non-presentative nature of things, possibly necessary for preserving the individuality of themselves and that of the subject affected, may require also that we should "know" them only by what they "do" rather than by what they "are." But however this may be, objectivity of some sort is all that is needed to make thought rational and we do not require for the theory of "knowledge" in its primary stage that this objectivity be more than a center of reference for "phenomena" that we cannot explain by the spontaneous action of ourselves. We can name it according to the uniform way in which it acts. If it appears as the nucleus of properties given in sensation and exhibiting no evidence of an accompaniment of intelligence we may call it "matter." If there be reason to suppose that one of these realities shows traces of consciousness and the other does not, we may call the former "spirit." We may have to distinguish the two only as we distinguish different kinds of "matter" and thus wait for evidence of their ultimate reduction to the same kind of reality. But the theory of "knowledge" in its primary issue does not require us to settle this question, if it ever requires it at all. It is the metaphysical task to undertake the definition and investigation of the nature of objective reality and its relation in kind to consciousness. What I have wanted to show in the discussion of "perception" is that the very nature of the cognitive consciousness is to "know" more than itself, even though the object "known" have no resemblance to the subject or act of "knowledge." This is making "knowledge" a process transcending itself, in the proper sense of the term, and vindicates realism to the extent of justifying the habit of reckoning with the objective in "knowledge" and action quite as much as with the idealistic view of the subjective. Whether that objective shall have anything spiritual in it will depend on what it does and what we can discover scientifically in regard to the nature of that action.

CHAPTER IX.

THEORIES OF METAPHYSICS.

The classification of the problems of science and philosophy showed that the determination of the nature of time and space was a sort of propædeutic to the metaphysics of other reality, but not for the same reason that this conception of the case was maintained by Kant. The reason advanced here is that which grows out of the acceptance of the Comtean principle in the determination of the serial relation between various sciences. We found that this placed Mathematics as necessary for the investigation of later problems in physics and chemistry, etc. Now the determination of the nature of space and time in the ætiological problems of reflection has a similar function to perform in that field. If we wish to so express this function as to imply that our system of metaphysics will be determined by our views of space and time I have no objection, as this is perhaps true in a measure at least. But this will not be true, if it is to mean that we cannot engage in metaphysical reflection until the problems of space and time have been fully solved. Metaphysical reflection is not wholly dependent upon the processes that make the nature of space and time known to us, but involve the application of other categories as well, and their work is only supplemented and enlarged by our knowledge of the nature of space and time, not wholly conditioned by it. Hence I here treat Kant's real or apparent assumptions in the matter as only partly true, and place investigations into the nature of space and time as prior to the metaphysics of reality mainly because they are simpler in their contents and condition them only in the sense that they determine certain aspects of them, not their whole character.

In the analysis of metaphysical problems Hylology appears as the science of the existence and nature of Matter, or the metaphysics of nature. Now to deal with this as such a scheme would imply would require the examination of investigations and discussions which I must leave to those whose special work it has been to treat the subject exhaustively. I can merely outline the main conceptions lying at the basis of such an endeavor. It is the business of the metaphysical side of Physics and Chemistry to deal fully with the problem of matter. I shall take it up here only as it is and has been related to the historical

discussions of philosophers whose specialty has not been physical science, but reflective analysis of conceptions. We are here less concerned, therefore, with the problems of matter as the physicist has to deal with them than as the philosopher, so-called, has to deal with them, and his problem is to see how far matter can be used to explain the world questions, not merely to explain the phenomena of physical science as it is usually conceived. Consequently I have not to examine here all the subordinate problems of the physical sciences, but that part of their field which is related to cosmic questions and the question whether matter can adequately explain all phenomena whatsoever.

In defining exactly the field which I mean here to traverse I shall have recourse to the analysis of the theories of knowledge and reality (p. 72). At the close of that analysis I called attention to the fact that theories which were excluded from each other in that system by the strict application of the logical principles of division had been closely associated with each other, or even identical in the history of speculative thought. I have to make some note of that fact, though the classification was intended to define the proper territory for the appropriate theories. That classification made Realism and Idealism exclusively epistemological doctrines and in no respect metaphysical, that is noumenological theories. I mean to insist that in any true system of philosophy this must be maintained and that there is no direct and deductive highway from epistemology to metaphysics. But however true this may be, it does not forbid or excuse the philosopher from discussing points of view under those heads which have been treated as metaphysical problems, even though this would be regarded as a transgression when the theories were properly defined. Though I might consider it proper to exclude Realism and Idealism from metaphysical discussion, I cannot exclude discussions which have passed under those names.

The simple reason for refusing to admit Idealism and Realism into metaphysical problems is the fact that the former is too equivocal to serve for any clear thinking and the latter has never been anything but an epistemological theory. Idealism is a term that has done duty for opposition to both Realism and Materialism, which have never been identified in all their relations, while it has also usually taken a monistic view of the world when Materialism has variously been monistic and pluralistic. This fact alone absolutely disqualifies Idealism for service unless it is strictly limited to a definite and unambiguous problem, to say nothing of the consequence of the distinction which this work draws between epistemological and metaphysical problems. Exclud-

ing Realism and Idealism from a place in the right conception of metaphysical issues and as wholly disqualified, with the methods usually employed in their name, to pronounce upon the questions which we have to discuss in ætiological and ontological problems, we are left with Materialism and Spiritualism as the two antagonistic doctrines which must come under consideration. But there are equivocations here also. The tabular analysis shows that the theories of reality have been divided into the quantitative and qualitative, the former being further subdivided into monistic and the pluralistic, and the latter into materialistic and spiritualistic. But as a matter of fact, in the history of philosophic reflection the exclusion does not take place in this manner. Monistic theory has sometimes been materialistic and sometimes spiritualistic, and pluralistic theory the same, as the analysis shows, or in one form consistent with the admission of a limited field for material "phenomena" (Dualism). Consequently we may subordinate quantitative points of view to the qualitative and exhaust the possible ways of discussing the phenomena of existence, the materialistic and the spiritualistic. Scepticism is not admissible as a positive theory of explanation, but only as a method of limiting the assurance which convictions may take in regard to one or the other of these theories.

The term Materialism, whatever may be said of the theory, is respectable enough not to require any apology for the use of it to denominate a metaphysical theory of the world. But to many this will not seem to be the case with the term Spiritualism. I admit the objections which apply to its use and lament the preconceptions which it suggests in this age especially, as not rightly representing the general idea which is intended to define its meaning in the problems to be discussed here. But in spite of these objections, I think there are reasons which justify an attempt either to restore the term to respectable philosophic usage or to instate it in that, if it is not strictly correct to speak of restoring it. There are several adequate reasons for the use of the term. I have repudiated Idealism as not qualified to define both an epistemological and a metaphysical problem, and the history of its actual usage shows that, even when it opposed Materialism, it has not opposed always the fundamental implication for which Materialism stood, namely, the denial of immortality. Idealism has usually been as silent as scepticism on that question, or as positive against it as any dogmatic materialism. Consequently some term is absolutely necessary to express the direct issues which are raised by the doctine of Materialism in all its relations. Christianity took up and defined a position

which is perfectly clear, whether it be correct or not, in regard to this issue. It antagonized Materialism, not on any such grounds as the epistemological idealist opposes it, but on the ground that it did not adequately explain the cosmos and did not permit what Christianity thought was a fact evidenced by the resurrection, namely, a future life. The affirmation and denial of a future life is a clear issue faced and discussed by the materialist. The opposing theory must recognize this issue, and the term "idealism" does not do this. Now Christianity was definitely a spiritualistic theory, and as its interests still define the opposition between the theory that explains all phenomena as functions of matter, and the theory which maintains that something else than matter is required to explain both the cosmic order and the phenomena of consciousness, we are fully justified in choosing a term which definitely recognizes this issue. Besides, I may also defend myself by the usage of Mr. Sully who has restored the term in his Psychology as the fitting opposite of Materialism. Kant uses the term "Spiritualism" in his argument against Mendelssohn and elsewhere as the proper antithesis to materialism. Liebmann and Busse also recently use it for the same purpose. In fact it is becoming a commonly accepted term among many German writers. It concerns the question whether material organization can account for the origin and nature of consciousness, and for that reason as well as the traditional problem which has defined nearly twenty centuries of controversy it is the only proper term to describe or imply the opposition to Materialism as a metaphysical theory. The issue has been between the doctrine that matter and the laws of its action are sufficient to account for all the phenomena of nature including those of consciousness and the doctrine that there is a soul which has an "immaterial" nature and which is the subject of mental activities or functions precisely in the same way that matter is supposed to be the subject of weight, color, density, motion, etc. If this issue had been settled both terms might be confined to a historical question, but it has not been settled and hence metaphysics has still to face the problem, whatever else it may be assumed to include. Hence, in spite of associations which the last twenty years have created and which ought never to have determined the essential import of the term, I decide for the reason above given to employ the term Spiritualism to denote the proper metaphysical opposition to what is expressed in the term Materialism.

The antithesis which has prevailed since Berkeley and Kant has been that between Idealism and Materialism. The controversy which has gone on in terms of this antithesis has nothing to do with that

which is embodied in the opposition between Materialism and Spiritualism. The idealists have been quite willing to allow the public to believe that it was and is the same, but a very little intelligence and honesty will expose this illusion. The animosities which have governed the relations between science and religion and the intolerance which religion has always shown in regard to freedom of thought have made it the interest of the philosopher to appropriate either the language of the religious party or an attitude of hostility toward Materialism without telling clearly what he meant by it. The public is easily duped and the philosopher can escape persecution by tactful indulgence in the public of its illusions. There are, of course, those who deceive themselves in an attempt to mediate between the two parties to the controversy and who, in their very desire to get and impart the best of human thought and endeavor, may compromise the interests of clear thinking by the necessity of yielding something to the intolerance of the religious mind. The influence of scientific theories and scepticism in displacing various cherished ideas of theology and the rout of mediæval religion in matters like Ptolemaic astronomy, the doctrine of antipodes, Cartesian vortices in the explanation of the motion of celestial bodies, special creation as against evolution, and similar problems have made it impossible to intelligently ally one's self against science and the scientific spirit, while it was equally impossible to apologize for the old superstitions and traditions that, somehow or other, can survive all defeats and in a large measure, directly or indirectly, influence the policy of education and limit its freedom. It has always demanded that the philosopher shall attack Materialism and it has not always been wise enough to detect the subterfuges by which this could be done without betraying any real sympathy with the conceptions and problems that interest the spiritualist. Ever since Kant the philosopher has been a perfect adept in gymnastics of this sort, though he is not to blame for the situation which compels him to play the rôle of apparent hypocrisy, and in fact has no sympathy at heart with this compromise of his intelligence and honesty. But in the effort to preserve the intellectual and social values of a spiritualistic philosophy when he could not defend its metaphysics he has been obliged to put a new meaning into old phrases in order to postpone the day of judgment and to keep intolerance at bay long enough to obtain a *modus vivendi* for more liberal thought. His ethical ideals did not differ from those of the prıvailing orthodoxy when it came to the practical duties of life and he could preserve and defend these by putting a moral under the cover of a metaphysical antithesis, and so the opposi-

tion between Materialism and Idealism became a distinction, half psychological and half ethical, between what may be called Sensationalism and Intellectualism. Psychologically he could rail at the derivation of "knowledge" from sensation and ethically against hedonism, while in metaphysics he could either ignore the theories of physical science as not in his province or take cover in the wonderful truth that we can only know reality through consciousness, and then escape the other half of the problem by converting the terms "soul" and "mind" into equivalents for states of consciousness while nothing is said about the conversion. The language is familiar but the nature of the content is not discovered. The voice is that of Jacob but the hands are those of Esau, while poor blind Isaac bestows the blessing on Jacob, and does not know that he is eating kid instead of venison.

I am not here disputing the truth of Idealism, but only its relevancy to the problems of metaphysics as expressed in the terms Materialism and Spiritualism in the history of philosophy. I am quite willing, so far as the discussion at this point is concerned, to admit the entire truth of the idealistic view of things. Indeed if I am allowed to define it for myself I would say that I accept it as incontrovertible on either the solipsistic or non-solipsistic conception of it, but I should be under no illusions as to its limitations and I should make no profession of its solvent qualities. It is very useful as a form of radical scepticism and as a methodological instrument for puzzling the uneducated and creating trouble in the field of scientific dogmatism, often as naïve in critical matters as a peasant, and it preserves an impulse to respect the higher types of consciousness, though only by force of historical association. But it does nothing more. It solves absolutely no metaphysical problems whatever. On the contrary, unless it adjusts itself to the conceptions of the very science which it assumes to supplant it results in doctrines like Hegel's theory of the tides! What the idealist never seems to learn is that a new shibboleth does not escape responsibility for all the problems of human reflection. We may resolve all things into "states of consciousness" or "phenomena" as much as we like, or lay as much stress as we please upon the intellectual as distinguished from the sensory processes, we do not escape the consideration of all the old problems in all their essential characteristics, and the relations which were supposed by them to subsist between "phenomena." This ought to be apparent in the system of Hegel with its hideous paraphernalia of metaphysical language. It is the same and always will be the same with any single description of the totality of existence. We may take any term we please to represent the fundamental data of

"knowledge" and think that we have put an end to certain philosophic theories, but it will not be long until those theories have turned up in a new garb. Plato may undertake to refute "materialism" by a doctrine of "ideas" and then discover in another generation that his position is not different from that of Lucretius. We may rail at "innate ideas" and accept "intuitions." We may limit "knowledge" to "experience" or "phenomena" and then assert the existence of "*a priori* conceptions" or laws of thought which are not "phenomena" or the products of "experience." We may start with sensations as our elementary data with the desire to escape metaphysics, and land in the systems of Berkeley, Hume or Condillac. We may insistently assert that we "know only phenomena" and then proceed to give a vast system of philosophy in terms of matter and motion, or *a la Hegel* ring the same changes on "spirit." We may take any term to express the nature of our elementary datum, and there will be some Socrates about to ask for a definition and explanation, and then we shall either have to tear our hair with poor Euthydemus or calmly spin out a metaphysics with Plato. We may carefully limit "knowledge" to "experience" and exclude it from "things in themselves," in order to escape a disagreeable system of metaphysics and then produce a vast system of transcendental philosophy which is neither as intelligible as "experience" nor as credible as "things in themselves."

The fundamental conception upon which the idealist bases his view of things and from which he would deduce far-reaching results is his notion of "phenomena." Ever since Kant, and also assuming that he is equally describing the conception of Plato, the idealist insists upon defining "phenomena" as "appearances," with or without its natural implication of illusion, but certainly with its implication of subjectivity, in some sense at least, and its exclusion of objectivity of some kind. I must dispute the claim that this gives a complete account of either Plato or Kant. Plato did not mean psychological "appearance" by his "phenomenon." His antithesis was between the transient and the permanent: ours between the subjective and the objective, both possibly either transient or permanent. Plato's system of metaphysics drew the distinction between the sensible and supersensible realities, not between the sensible or natural (physical) and the superphysical or supernatural (spiritual). His supersensible realities were like the Leibnitzian monads, except that he did not describe them as immaterial, and like the Lucretian atoms, except that he did not describe them in terms to suggest sensible qualities. These "ideas," "forms," manifested their existence by the manner in which they

arranged the elements of the "material" world, and thus represented the emergence of the supersensible into the sensible, of the invisible into the visible. "Appearance" thus in describing the Platonic conception does not mean that things must be seen in order to be "phenomena," but only that they must take a *possibly* visible form in order to be this, and this form meant that they were transient modes, complex objects subject to dissolution while the "principle" that arranged them remained permanent. The "appearance" was the passage from the supersensible to the sensible, not from the actually unseen to the actually seen; from the "potential" to the "actual" in the Aristotelian phraseology which expresses the real conception of Plato. In one condition they were supersensible, that is, not possibly objects of sensory "experience" or even of any other form of "phenomenal knowledge." In the "material" condition they had assumed a form which made them sensible, that is possible objects of "knowledge," not necessarily actually present to consciousness. "Phenomenon" then meant the condition in which the process of evolution or creation left reality, which was in its nature transcendent, or it described the mode of transition from the supersensible or transphenomenal condition to that in which it became a possible object of "experience." Consequently it represented the notion of transiency as distinct from that of permanence. Subjectivity was no part of his real meaning, in any sense of excluding an objective reality causally at the basis of the facts.

The same meaning is characteristic of Kant. He distinctly indicates that "phenomena" (Erscheinungen) are events or changes Veränderungen), and very frequently he describes them as "objects of empirical intuition" and in this way implies that they are mere internal states of the mind. It is true that he sometimes speaks of them as "mere presentations" (blose Vorstellungen), but in addition to the elastic import of "Vorstellung," the subjective import of which Vaihinger admits contradicts other definitions of "phenomena" as "objects of intuition," we must remember that there is perhaps not a single fundamental conception in Kant's system which is not implicated with various equivocal imports, that enable the reader to put any construction he pleases upon his position. It is certain that Kant does not say that "phenomena" are merely states of consciousness, a form of statement which directly means to exclude the objective from consideration as a necessary part of "knowledge," while presentation, sensation, etc., do not make it clear whether this limitation is implied or not, except to those who have definitely indicated this as a part of

their definition and conception of the facts. But this point of view was not so clear at Kant's time as in ours, even though it may be the tendency of his thought to produce it. The tendency is clear in Berkeley and Hume, and it was the natural implication of the Kantian system. But Kant did not wholly break away from the philosophic conceptions of his earlier period and he possibly tried to make the term "phenomenon" do service for both the idea of purely subjective states and the objective idea of events or change. He is certainly not prepared for any solipsistic interpretation of the term, and in his attempt to refute Idealism he shows this, whether we regard him as consistent or not in this position. The ambiguity in Kant's conception is caused by the fact that he lived in, and in a large measure determined, the transition from the Platonic to the modern view of reality. This was effected mainly by the Philosophy of Leibnitz which exercised a far larger influence on Kant than either he could control or his readers can superficially discover. His conception of "phenomena" was borrowed partly from the usage of Plato and partly from the influence of the Leibnitzian philosophy on his way of conceiving things. Leibnitz had constructed his system with the same motives as Plato, namely, to refute "materialism," and to do this he had a system of supersensible realities. His monads were spaceless points of force and hence could not be objects of sensory "knowledge." Though they were supersensible, and even possessed in various degrees superphysical properties, they could work changes or produce effects, but without transmitting them to other monads. Their action was thus wholly subjective, but Leibnitz provided machinery to make this conform to the nature of external reality. As the action of each monad was the same it "mirrored" or represented in each case the nature of objective monads by virtue of the identity of all of them in kind. The harmonious action of the system was not accounted for as in the mechanical system, namely, by transeunt action, *influxus physicus*, *causa materialis*, but by *causa occasionalis*, whatever that meant. The point here to be noted is the conception of purely subjective action in the explanation of genesis. Now Kant returned to the materialistic position in his "receptivity of sense." This assumed the influence upon the subject of action external to it. The legitimacy of this procedure is not the question, but only the fact. Leibnitz could not get beyond the subject in his conception of activity. Kant, whether legitimately or not, did get beyond it, and hence he had to admit the existence of "phenomena" beside those of the internal world, and these were the objects of intuition, something more than

internal states or subjective "phenomena." Now as "noumena" could not be "known," these being in reality the Leibnitzian monads incapable of acting as such on other monads or subjects by any transeunt action, Kant, pressed, on the one hand, by the impossibility of calling the external reality a "noumenal" fact and, on the other, by the necessity of supposing this external reality as a condition of making sensation and its genesis rational, could only call it a "phenomenon" without making it a state of consciousness of the subject, even though he also considered consciousness a "phenomenon" of the subject. Hence besides states of consciousness he assumed a type of "phenomena" which were events rather than "appearances," except as modes of reality between "noumena" and subjective "phenomena." But in spite of this, his Leibnitzian presupposition could not prevent the rise of an equivocation in the conception of "phenomena" as purely subjective events, consciousness being the assumed prius of what is "known." What Kant ought to have made clear was that he was dealing with three "worlds" so to speak, the world of "noumena," the world of external "phenomena," and the world of internal "phenomena." The first two of these were conceived somewhat after the manner of Plato and Lucretius. Plato and Lucretius had a supersensible world, the one of "ideas" and the other of "atoms." Both also had a sensible world which was a compound, organic complex or union of the elementary units of the supersensible world, and was on that account transient or "phenomenal," that is perishable. The "noumenal" or supersensible world, "ideas" or "atoms," was not perishable. The antithesis was between the transient and the permanent. But Kant had to start with a later and different antithesis, which only partly coincided with the old one. This was the antithesis between the subjective and the objective, the internal and the external. He had two objective worlds, the world of "noumena," or monads, which could not act on one another, or transmit their actions (motions) to other monads and so could not be "known" through *causal* influence which was the sole condition of sensible "knowledge." But assuming that sensory "experience" was occasioned by causal action from without, as he distinctly states, Kant had to have an external world beside that of "noumena" and also in addition to that of internal "phenomena," as the anthropocentric method of investigation since Descartes had forced upon thought the antithesis between subject and object. Now if Kant had shown that his external world of "phenomena" affecting sense sustained the same relation to the "noumenal" world that Plato's world of sense sustained to that of "ideas," or Lucretius' world of

compounds sustained to that of "atoms," we should understand what he might think of a causal activity not directly expressing the internal action of the monads but yet proceeding from without the subject "experiencing" its effects, and we could still have the distinction between internal and external "phenomena" without making them all alike in any other aspect than their eventual character. But Kant never made clear what he meant by his external world, except that he called it "phenomenal" which he also called the internal, though he regarded the latter as causally related to the former. Consequently with the uselessness of his "noumenal" world and the connotation of the term "phenomenal" applying alike to the internal and external, with a tendency of philosophy to return to the Leibnitzian notion of subjective activity, subsequent conceptions moved in the direction of an absolute idealism in which all things were states of consciousness and both worlds of Kant's external "phenomena" and the world of "noumena," were abandoned, whilst adoring philosophers trace the lineage of idealism to Kant instead of Leibnitz! Kant would not decide finally which master he would follow, Leibnitz or Plato, but fluctuated between solipsism and dualism in a way that left the interpretation of his "phenomena" dubious. But it is quite apparent that there is as much to say in favor of their being trans-subjective, though non-noumenal, as in favor of their subjective nature, with the certitude that Kant intended, whether consistently or not, to assume an external world other than mental states which he conceived somewhat after the manner of what Hamilton calls "hypothetic realism," though he did not conceive it as a product of inference. He was too much under the influence of Leibnitz' "intellectual intuition," even after he denied it, to take the position that the "knowledge" of external reality was inferential, and too thoroughly enslaved by the formal functions of the categories and the subjective nature (not the origin) of sensory states to make the cognition of the external world any more direct, and hence he left it asserted but not explained, except in so far as the equivocal term "phenomenon" described it.

But grant that one side of Kant's position was the only one, namely that which apparently identified "phenomena" with states of consciousness and that subsequent idealism rightly represented him, would we by that resource escape the problem of materialism as it has been conceived from time immemorial? Does the statement, or even truth, of idealism that all we "know" are states of consciousness put an end to explanatory processes and methods of ascertaining or interpreting the meaning and implications of "phenomena"? By no means.

States of consciousness, even if they are the only events in the world, the only world we "know," are likely to call for explanation of some kind. They quite as readily start definition and inquiry as any other supposed events or facts, and we have only to look at Kant himself to see that, even if he did limit "phenomena" to subjective states, he accepted the processes of explanation involved in the use of the categories and employed all the orthodox language of metaphysics in the analysis of causality with the deliberate intention of refuting "empiricism" and the scepticism founded upon it. But conceding that any *ad hominem* appeal or argument would be a misconception of idealism, there remains the fact that states of consciousness do not explain themselves and only elicit investigation instead of preventing it. They have at least to be defined. If we define them as "phenomena," these having previously been defined as "states of consciousness," we commit the *circulus in definiendo* which clear and rational thinking will not permit, unless we wish to confess defeat, and if we define them as events, activities, functions of the subject, we admit into conception and "knowledge" a fact which is not itself a "phenomenon" by using the causal principle, and thus all the old ætiological points of view again come into consideration, especially if we admit any distinction of kind between one class of mental states and another, such as memories and sensations, associations and sensations, or thoughts and sensations. If we admit an ætiological or noumenological subject there is no *a priori* objection to the possibility of transcending "phenomena" in the other direction, namely, an external object. It is only a question of the way in which we feel obliged to explain the genesis of sensation as events whose course we cannot determine wholly at will. Anything but circular definition, therefore, only brings back all the modes of inquiry and explanation which the idealist tried to put an end to by his "all we know," a mere subterfuge for escaping a problem which only reappears like the clown or juggler whom we thought we had safely tied and locked in a box. This fact is quite apparent in the systems of Fichte, Schelling and Hegel who either dressed up phenomenalism in noumenal terms and passed it off for orthodoxy, or brought in at the back door the metaphysics which Kant had put out at the front.

There is another way of stating the case. Materialism and Spiritualism endeavor to determine the temporal and causal relations of facts, the one limiting the "phenomena" of consciousness to material connections and the other extending it beyond these. Now there are at least two facts which show that Idealism does not escape the necessity

of discussing the questions involved in that problem, nor when proved does it eliminate the materialistic conception of the case, which does not depend upon the definition and conception of "matter" formed but upon the relation between it, however defined and conceived, and the consciousness in question. The idealist will not endure solipsism, and consequently he admits that there is something that transcends the individual consciousness which asserts or accepts the existence of either this trans-subjective impersonal object or of personal consciousness other than the one "knowing." Whether he admits more than other social units or not, he assumes realities which are in some causal relation to his own mental states and the question will be to determine what that is which is thus the prius of his own functional action and which may determine the value and destiny of his own consciousness. Again, when he admits, as Kant does, an external world, whether "phenomenal" or "noumenal," in causal relation to consciousness and conditioning its occurrences, even if it does not determine from without its constitution, he must face the question of its temporal relation to the group of "phenomena" with which it is associated, and no amount of definition or reiteration of the truism that "all we know is states of consciousness" will solve that problem. The silence of the idealist upon the questions of God and immortality show this beyond doubt. If the existence of God and immortality followed from this admission the idealist would be quite ready to admit it, as his interest lies in affirming rather than denying these doctrines. But if he limits that temporal relation, on the one hand, or admits solipsism, on the other, his silence is evidence that he does not accept the existence of God and immortality, while the public will not permit him to positively deny them. The consequence is that we have to discuss Idealism as a problem *within*, not prior to, subsequent not antecedent to, the nature and relations of consciousness. The real function of Idealism is to introduce scepticism and criticism into the naïve assumptions of "common sense" whether of the scientific or unscientific mind, and not to deduce from its postulate about the *ordo cognitionis* any ready-made metaphysics which would make this the *ordo essendi* without further argument than the *a priori* assumption of the very consciousness which has to be accounted for. It may say what it pleases about the value and teleological meaning of consciousness, but unless it is frankly solipsistic and accepts the Leibnitzian statement of its case it must subordinate its entire speculations to the conclusions established regarding the causal relation of its "phenomena" to the realities which that causal relation assumes are the prius of its own existence and certainly its limit, if the

Lucretian conception and that of modern science be the standard of judgment.

The actual problems of history that were embodied in the terms Materialism and Spiritualism concerned the origin and destiny of "phenomena," their causes and end, whether we interpret that "end" as a purpose or as a result toward which various movements tended or converged. They cannot be evaded by any verbal hocus pocus which tries to make a name like Idealism as sacred and inviolable as the ancient name of God. Turning up the nose and screaming when some one uses the word "materialism" sympathetically will neither eliminate the problem indicated nor justify and elucidate the higgledy piggledy phrases with which the idealist mystifies science and pacifies religion. The problems of causal origin and destiny still thrust themselves forward as the primary considerations in all estimates of value and meaning. They began in cosmology and they terminate in it. The psychological interpretation of them has been a diversion in every sense of the term, and though it determines an important point of view for disturbing the lethargy and self-complacency of sensational dogmatism it does not determine the order, grounds, tendencies and causal explanation of external nature. This problem of cause and end, origin and destiny, ætiology and teleology, conditions and meaning, as some would call it, of all facts, including the "phenomena" of consciousness, is not determined by any such antithesis as Sensationalism and Intellectualism, or Realism and Idealism, or by exalting the order of our "knowledge" as if we were determining thereby the order of nature. Sensationalism and Intellectualism represent an ethical and psychological distinction of function in regard to values. Realism and Idealism represent an epistemological distinction in regard to the modes by which objects are "known" and their values determined. But neither of these methods predetermine conclusion in the cosmological problems of matter and spirit, or the causal agencies of the cosmos and the teleological problems of consciousness. Materialism and Spiritualism, as I conceive them, represent precisely the antithesis which history has determined between the theory which holds that the organic world represents the origin and destiny of all "phenomena" whatsoever, and the theory which tries to make an exception to this origin of the "phenomena" of consciousness. They represent the two different ways in which the "phenomena" of nature and consciousness are explained ætiologically and teleologically, the one affirming and the other denying transmaterial reality and teleological order or meaning. The materialist explains all "phenomena" as the

resultant of mechanical action, the composition of the "forces of nature." The spiritualist, though he admits the existence of a mechanical order and its forces, maintains that physical "phenomena" do not constitute the whole of "nature," that mental "phenomena" are not physical, and that they must have an explanation in something not material in its nature. He accounts for the "phenomena" of consciousness by what he calls the "soul," a reality which is or is supposed to be immaterial and whose functional activity, however it may be related to matter as an occasional cause of its occurrence, is not constituted by material action and in so far independent of it that it might continue its action without that occasioning cause. Imitating and insisting upon monism, there might be a theory supposing that all "phenomena" were spiritual in nature and none in reality material. This would be the absolute contradictory of Materialism. But such a theory would or might be identical with what is meant by Materialism and would leave unsolved the problems which are indicated by the antithesis between materialism and spiritualism, as it is not the name which determines the issue, but the facts indicated by it. The real question is not what we shall call the realities or forces of existence, but what are the facts of the case and what things do or how do they act. In so far as mere terms are concerned "matter" is as good as "spirit" and "spirit" is no better than "matter." We might use the term "spirit" and have the facts that are associated with what is now called "matter," and the issues would remain as they are. The real question is to account for certain "phenomena" which we call mental and which we find associated with certain other "phenomena" which we call physical and which are presumably the resultant of composition. Are the latter to be classed with the former in origin and kind or not? That is the issue.

We observe certain events which result from the composition of "forces," say the fluidity of water and power to quench fire from the composition of oxygen and hydrogen; the luminosity of fire from the union under certain conditions of two gases that are invisible; the fall of an unsupported object under the attraction of gravitation; the motion of a ball in response to impact or propulsion. Now it makes no difference what we call these gases, "realities," "forces," whether "matter" or "spirit." The explanation or meaning of the facts will be the same in either case, unless we can prove that there is a radical difference between them and the "phenomena" of consciousness and insist that "spirit" implies consciousness. But this would leave these distinguished "phenomena" still unexplained, because of their as-

sumed difference in kind. What really interests us is the fact that the observed "phenomena" are actually or apparently the contingent effects of a certain combination of what we choose to call "forces," realities, atoms, substances, modes of motion, etc. The mere name which we give these things whose actions or interactions give rise to the "phenomena" in question is of no importance whatever. The real questions are whether there are any radical distinctions of kind between the "phenomena" within our "knowledge" and what the relations of any or all of them to the things named. If they are all alike and the resultant of composition or interaction, or if unlike and still such resultants, we shall take one view of their nature, relations, and destiny; but whether alike or unlike, if they are not such resultants we will take another view of their character. If "phenomena" are the effects of composition, their existence and value depend wholly upon this composition and disappear with dissolution. If they are not the resultant of this composition their ground and value must be sought in some other system. All this is axiomatic.

Now materialism has stood for the doctrine that all "phenomena" whatsoever are the resultant of composition from elements called matter, functions of material compounds, still retaining the term "matter" for the compounds as well as for the elements. Whether its reasons for calling the elements and their organic compounds by the same name are good or not makes no difference to the general question. The main point is to see that, whatever the nature of the elements, facts appear as the resultant of composition that were not existent or apparent before. Now spiritualism does not deny, or certainly does not need to deny, that this doctrine applies to "forces" called "matter," but it denies that consciousness is the resultant of the composition of these elements, or that it is a function of "matter" as a compound. It seeks to maintain that there is some other reality than mere "matter," and that consciousness is a function of this immaterial reality, calling it "immaterial" because it reveals none of the ponderable qualities of composite "matter," which is all that we sensibly know. On this ground, if the evidence of the fact is sufficient, it can suppose consciousness to be independent of material composition and so not to have its existence and destiny determined by the accidents of change and composition in matter.

Now it is to be noticed that spiritualism gives a *meaning*, as it is called, to consciousness which the materialistic theory cannot do This "meaning" is that it is the activity of another subject than the organism, the evidence for this being variously stated in terms of the

difference between physical and mental "phenomena," or facts proving that this subject exists apart from the body. Whether it is correct or not is not the question, but only its conception and the mode by which it undertakes to define and prove its claims. The materialistic hypothesis can give consciousness no other meaning or permanence than the organism with which it is actually associated. Whatever place is assigned it in the group of "phenomena" connected with the body, whether as their "end," or as means to their activity, or as one of a system of reciprocally related facts, it can have no meaning extending beyond the existence of that of which it is assumed to be a "phenomenal" function. Making it the resultant of composition, as it does other functions of the organism, digestive, circulative, respiratory, secretive, motor, etc., the materialistic theory must regard it as equally transitory. But spiritualism, if it has satisfactory evidence as to the facts claimed, has a philosophic basis on behalf of the claim for the permanence of consciousness beyond the dissolution of the organism in the conception that consciousness is not a function of the body, that is, is not a resultant of composition of material elements. If it is not such a resultant it cannot be affected by the decomposition of the organism, no matter what other account of it may be demanded. What its meaning would be in such a view of it would have to be settled by other considerations than those of the present physical sciences. This again is a truism but requires statement in order to use it as a major premise for certain further animadversions.

Now what I wish to contend for here is that all teleological and ethical interpretations of consciousness, as well as all other facts and "phenomena," must depend wholly upon the conclusions in regard to their causes. That is to say, the teleological view of things is conditioned and wholly conditioned by the ætiological. It is not independent of it, as the idealist would have us believe at times. We cannot say that, whatever the cause, any given "end" or consequence will hold true, because that "end" is determined by the nature of the causes that lead to it. If the causes cease acting the effect ceases to exist, if the effect is a mere "phenomenon." The purpose, value, and persistence of any fact is dependent upon the conditions that determine its nature. Functional activity cannot persist beyond the existence of the subject of which it is an activity. A subject once formed, created, or organized may subsist indefinitely, or even permanently, if nothing occurs to disturb its integrity, but if this subject be either by accident or by nature a transitory one, its property and functions are equally so.

I have a lighted candle before me. I do not say that I have myself lighted it, but that the burning candle in some way is an object of consciousness. This bare knowledge may not suggest that the light or luminosity is an incident with any less persistence than the materials out of which the taper is made. The luminosity might seem to be as permanent and as essential a property of the taper as the color or hardness of it, so far as my present consciousness is concerned. But suppose that the wind blows the flame out and I find myself with the taper showing no luminosity but having the same color and resistance as before. I have conclusive evidence that the luminosity is not a necessary accompaniment or consequence of the remaining properties, as well as not a part of them, as they appear. I find that in spite of their appearance, as before, the light had disappeared as a consequence of the causal action of the wind, and will be treated as an incidental condition or state of the taper, certainly not an effect of what remains to consciousness. But now if some one comes along with a burning match and relights it the taper shows its luminosity again, and I have the same phenomenon as before. But what I chiefly observe in such a case is that the flame this time has a beginning in time, just as its disappearance by the wind indicated that it had an end. Before this disappearance it might not have had a beginning in so far as my "experience" was concerned, and after its extinction it might permanently cease to exist. In the former case it might have had an indefinite or infinite past existence, and in the latter it might never again have a future existence, in spite of its past. Also, in so far as my "experience" is concerned, once existing it might have a permanent existence, in spite of its actual origin in time, if the law of inertia be true. I can tell nothing about one or the other alternative without further investigation, if at all. Now it is the reappearance of the light that gives me proof that the luminosity has a beginning in that particular case, and it suggests at least the suspicion that it had a beginning in the first place. But whether it implies this or not is indifferent to the suggestion that arises from the perception of its origin in the second instance. This origin suggests that there is some other cause than the static qualities of color and resistance that have persisted through the changes involved in the appearance, disappearance and reappearance of the light. We are at once set to work to inquire what the real cause of the light is. This cannot be the lighted match alone, *causa occasionalis*, because that has gone out by supposition while the taper continues to burn. Hence I seek in some conditions of the material taper an explanation of the luminosity. Finally, I discover that the

candle is composed of carbon in a certain form and the air of oxygen, and that the union of carbon and oxygen under the proper conditions will produce a light. The luminosity is thus explained as an incident of composition, a process involving the atomization of the carbon and the union with it of the oxygen to form carbonic acid. The light is thus found to be a "phenomenon," a fact that begins and ends with the act of the decomposition of the taper. It continues only so long as this process continues. When the organism known as the taper has been dissolved, that is, separated into its elements, the "phenomenon" comes to an end. It no more exists. Its destiny is determined by the termination of the organism of which it was a function in that act of decomposition. It has no other meaning or "end" than that which is determined by the nature and destiny of the organism of which it is an incident. At the same time the properties of color and resistance have also disappeared from all sensible "knowledge," and for all that we should know, except for the proof of the indestructibility of matter in the gravity of the elements, the very substance of the taper has also disappeared or been annihilated. Its "phenomenal" modes have certainly been annihilated, never to reappear, unless some accident or creative act or "law of nature" may reinstate the combination of elements and circumstances that will reproduce the "phenomena" that we have been describing.

We have in this detailed illustration an application, *in parvo*, of the whole materialistic hypothesis as it is conceived and applied to all the problems of cosmology in physics, chemistry, astronomy, biology, physiology, and psychology. All the "phenomena" of matter are treated as resultants of the composition of atoms or elements without regard to more than the fact that there are constituent or elementary elements of some kind to determine the organizations involved. We call them "matter" for certain reasons, whether good or bad it is not necessary to decide, though it would not in the least alter the nature and estimate of the "phenomena" if we called the elements "spirits." The one question to answer is whether the "phenomena" observed are modes or functions of the complex wholes so formed. If they are such resultants and are not properties or functions of the elements, their existence and meaning or "end" are exhausted with that of the organism of which they are the contingent effects.

The important fact to be noticed and emphasized after this elaborate illustration of the materialistic method is that we decide by it, not because it is materialistic, but because of the causal principles involved, the question of the value and existence of the "phenomena"

concerned. This means that the question of value is subordinate to that of cause, in so far as the problem of persistence is concerned. The illustration shows that it matters not what value we give the light, small or great, whether it is the purpose or end of all other functions of the organism, or itself subordinate to them, or even subordinate to some end outside the taper, or whether the light was intended by some outside intelligent cause for an end of the other functions of the taper, or for an end outside the candle,—on any supposition, the light regarded as a function of chemical composition has no more permanent existence than the taper or the process of its combustion. We may exalt the value of light all we please; we may regard it as the convergent resultant and "end" of any number of either mechanical or spiritual "forces" or agencies, conscious or unconscious realities, nevertheless, though all things be "for it," yet the light does not persist beyond the disappearance of the taper. Whatever "end" the light has it must be *within* the existence of the taper and not without it *as light*. The ætiology of the "phenomenon" decides its teleology. If the taper be imperishable the light will be a permanent reality or possibility. But depending upon the accidents of composition and decomposition, or upon the external creation and dissolution of the compound, whether this creation be by an intelligent agent or not, its nature and destiny are limited to the origin and end of that body. If the "phenomenon" have any value or teleological meaning in comparison with the other incidents really or apparently subordinate to it, this must be determined *within* the ætiological conditions that determine the existence of the organism, and these whatever their external initium may be, accident, internal or external, "law of nature," *deus ex machina*, or other cause, are the material components of the organism and their interaction. If the light be supposed to have an "end" beyond the existence of the candle, this "end" must either be its own continuance, which is not shown to be a fact, or some other reality to which its own existence is subordinated. The latter alternative subjects the value of the "phenomenon" to some other fact than itself and contradicts the supposition that the light is the superordinate "end" in the case, and forces us to assign whatever teleology it may have to the limits of the organism of which it appears as a function. This is what materialism means and does. It explains why and how the "phenomenon" comes into existence and why and how it cannot be supposed to continue beyond the conditions which give rise to it, and it is not necessarily concerned with any special view of these conditions which may have any name we please, though as a fact it has

always specified them in terms of "matter and motion." Its fundamental point is that the world, as sensibly known, is a complex of elements with properties that are incidents of this complexity and not of the elements, and it can appeal to an enormous mass of facts in its support.

But to illustrate the spiritualistic view, let us extend our case. Suppose the light which I have observed to actually continue after the candle has been dissolved. The situation in this instance would be a very different one. The fact would settle beyond all doubt or cavil, if the application of causality has any legitimacy at all, that the luminosity, whether a "phenomenon" or not, was not a function of the body concerned, nor of its combustion. We should have to seek some cause or ground for the fact outside the taper. It would not matter what that cause was or whether we chose to regard it as material or immaterial, it would certainly not be the resultant of the composition and decomposition of the candle. Its nature and destiny would be independent of that organism, whatever they might be. If we found on investigation that the light was the function of another complex and decomposable organism we should expect it to have a life or persistence no longer than this compound. If the complex organism be indecomposable, in spite of its organic nature, we might expect the "phenomenon," *ceteris paribus*, to be equally perdurable, potentially or actually. But it is usually the assumption, whether valid or not we need not determine, that all complex wholes are by nature dissolvable and actually decompose in time. Hence if the light actually does survive any process of decomposition the most natural supposition would be and is that it is the function of a *simple* element. If this ground or simple element be indivisible and indestructible we may expect or suppose the continuance of its "phenomena," the indestructibility of the "phenomena." The settlement of this question, like all others, would be a question of fact. We should have to determine, after the dissolution of the taper and the discovered fact that the light still continues to exist, whether the cause or subject of the "phenomenon" was composite or simple, and if composite whether it was indissolvable or not. If the settlement of such a problem be possible it would be the task of science and philosophy to determine it. If it is not possible we should have to let it alone. But it may be quite as possible as the settlement of the many problems of science which we do solve, and it would only devolve upon us to try as we do in the various sciences. We should only have to look for the evidence, if any be discoverable, that the subject of the light was either complex or simple,

knowing that as a fact or "phenomenon" it actually survives the disappearance of the candle, according to our imaginary case. All that this survival establishes is the light's independence of the taper, not its dependence upon either a simple or complex reality. If the evidence became accessible that the light was a function of a complex whole other than the taper, we should have before us the additional problem of its perdurability, unless we had already decided the nature of such complexes as transient by nature, in which case the destiny of the light would also be decided, as in the assumption of its functional relation to the taper in the case where we supposed it to have disappeared with its decomposition. But if evidence were forthcoming on investigation that the subject was as simple as an "atom" is supposed to be indestructible, we should have the problem of its persistence explained in terms of the assumptions that regulated our inquiries. But in any case we should have to look for additional facts to decide the matter. But it is noticeable that the solution is independent of the way in which we shall speak and think of the elements, though not independent of the way in which we shall speak and think of the relation between elements and compounds. If the essential attribute of "matter" be composition or complexity, then the elements would not be "matter." If the light then persisted beyond the existence of the candle, it would be an "immaterial" event, not a function of "matter," whatever view we might choose to take of it in other respects. But if the term "matter" be consistent with ideas of complexity and simplicity, divisibility and indivisibility, the persistence of the light beyond the organism represented by the taper might still be a "material" event, a function of "matter," though organism could no longer be regarded as necessary to its occurrence, if the subject of it after the dissolution of the taper be a simple element. The whole problem is to show first that the light does or does not survive any given set of associated "phenomena," and this will settle the causal relation of it to a given reality, while its relation to any others will remain to be determined equally by the facts and not by the consistency of our hypotheses, just as was the case in the first form of our illustration where the light was supposed to be perishable with the candle.

This illustration is an attempt to represent the method by which the spiritualistic theory has approached and tried to solve its problems, though I have perhaps exaggerated the amount of actual respect which it has had for the necessarily inductive nature of its inquiries. It claims, however, to have reasons to believe that consciousness is not a function of the bodily organism, and on this ground it consistently

asserts the possibility of its continuance beyond the dissolution of that organism. Whether it be correct or not is not now the question, but only the matter of defining its problem and the method of dealing with it. But if it have good reasons for its belief that consciousness is a function of some other reality than the brain or organism with which it is associated, it is entitled to affirm, not necessarily that it persists through all time, but that its existence is not wholly conditioned by the organism which dissolves to our knowledge, and that it has a meaning for an order which has still to be determined after the real or supposed disappearance of the body, and this affirmation or hope will have the strength and weakness of the evidence, nothing more. What the reasons are for supposing that consciousness cannot be a function of the material organism is indifferent to the definition of the problem and I am not at present concerned with the question of the legitimacy or illegitimacy of those grounds, but only with the conceptions which are necessary to make the question a problem at all. We must at least suppose, with or without grounds in fact, that consciousness is not a function of the body to have even the possibility of believing or asserting that it continues independently of it, and to assume a teleological import beyond the life of the organism. The reader has only to substitute the term "consciousness" for "light" with appropriate alteration of other terms to carry out the illustrations as the spiritualist would apply it to the "soul" in all its details.

I have now indicated what the issue is between materialism and spiritualism as metaphysical theories and as they have been conceived in the traditional problems which constitute the field of philosophical reflection. Only as men dared not express their real convictions on one side or the other of the issue has discussion in clear terms taken place upon it. Idealism and Realism simply abandon it and cover up the problem by a wilderness of unintelligible phrases in relation to this question, however intelligible they may or may not be in relation to the problems *within* the field of phenomenal facts. But the metaphysical problem has been between conceptions that are best denominated materialistic and spiritualistic, and not "materialistic" and idealistic. The question is whether "matter" or "spirit" is the ultimate background of "phenomena" in the cosmological problem, and whether human consciousness, whatever field has to be granted to material "phenomena," survives the organism with which it is actually associated. That is a problem which philosophy has to face and not to evade by the specious use of orthodox language with a heterodox content. It is simply the question whether the ætiological conditions

of cosmic order require "spirit" to account either for its origin or for the nature of its "phenomena," and whether the teleological meaning of consciousness can extend beyond that of the bodily organism. Let me then summarize the results of our reflections in defining the problem involved in the controversy between materialism and spiritualism.

Both theories have to agree that the meaning and value of "phenomena" are determined by the ætiological conditions that affect their origin or their occurrence and persistence. It matters not whether those ætiological conditions be transcendental or immanental, a personal intelligence creating the world and sustaining it or an impersonal order of cosmic "forces," temporarily or eternally in motion, the continuance and discontinuance of a "phenomenon" is dependent upon the continuance and discontinuance of the acting causes, and the value, "end," or meaning of the facts is conditioned accordingly. The only question in any case is, What particular cause is operative in the production of any given set of "phenomena," or is the "phenomenon" independent of organization? But in all cases the ætiological determines the teleological interpretation of the order.

The question of monism, dualism, and pluralism has a secondary place in the solution of the problem. Whether the kind of reality in existence is of only one kind or more than one kind, whether it is one infinite reality either material or spiritual, or two kinds material *and* spiritual, or many kinds material or spiritual, is not the primary problem, but the nature and perdurability of the "phenomena" which interest us as functional activities of this reality. We should have to settle the ultimate nature of this reality in its numerical aspects independently of the problem of the nature and persistence of its "phenomena." Even on the supposition that all reality is an infinite continuum and homogeneous in kind there is the fact that different "phenomenal" modes of its real or supposed activities have relatively more or less permanence in comparison with each other and we have the problem of the reasons for this difference, and it does not matter whether we speak and think in terms of monadic and atomic realities, apparently independent of this one absolute being or not, as appropriate centers of reference for them. The reasons for meaning and perdurability are one thing and the reasons for unity of kind are another, and possibly represent a problem whose solution cannot be attempted until we know more about the facts of the cosmos than we now do. At least it is certain that science went very far in the interpretation of cosmic "phenomena" before it obtained any adequate evidence that would even suggest a derivation of the elements, some seventy of them, from

a single form of energy. But whether such a conclusion is possible or not, it is certainly not the prior question in the determination of the meaning and persistence of all "phenomena."

There is a fact of some importance in the consideration of all theories designed to interpret "phenomena" and to render them intelligible. It is that every theory, scientific or philosophical, has two aspects, which I shall call the *explanatory* and the *evidential*. To be legitimate and acceptable, that is, valid and believable, every theory must actually explain the "phenomena" which it endeavors to make intelligible, and it must have evidence that the hypothesis is a fact. If a theory does nothing more than explain an event it shows nothing more than the fact that the "phenomenon" *might* have come into existence in this particular way, not that it actually did so. The explanation alone shows what is *possible*, not what is a *fact*. To show that it is a fact requires evidence. Often enough the explanation and the evidence are so closely associated that the discovery of one is accompanied by the discovery of the other. But we often enough find ourselves in the situation where a possible explanation offers itself while we are wanting in the evidence which would prove our conjecture or possibility to be a fact. Hence we must distinguish between the conditions which suggest the *possible* and those which suggest the *actual* explanation of "phenomena." Antiquity specially and philosophers generally have paid less attention to the evidential than to the explanatory functions of theories. The growth of the demand for evidence has been the fruit of scepticism and the application of scientific method which is almost entirely the study of evidence to prove hypotheses which were admitted only to be possible at the outset, what are called "working hypotheses," and so requiring additional evidence over and above what suggested them in order to prove that they were true as well as possible. But antiquity was satisfied with consistency in the extension of hypotheses. It started with observed facts, as all thought must do, and was content if its theories explained the "phenomena" which it wished to appear intelligible, and did little or nothing to verify its assumptions. The evidential problem did not present itself as nearly so urgent as the explanatory. The consequence was that it too often mistook possibility for fact, especially as the dogmatic spirit prevailed over the sceptical. The slightest observations and analogies sufficed to start and justify the widest and wildest speculations when the evidential question was not respected. The rise of the latter problem into consideration, as well as the rise of inductive methods and experimentation which were not applied by antiquity, has resulted in the

distinction between *philosophy* and *science* which did not exist for the Greeks, and hence, with the absence of inductive and experimental methods, their reflection took only the form of what we should call "philosophy," the speculative explanation of "phenomena" without much regard to evidential considerations exemplifying verification. But the moment that scientific method came into prominence and became the prevailing means of discovering, extending and verifying truth, "philosophy" was left with the heritage of speculating in *possibilities*, not in proving hypotheses by the investigation of facts. This was the condition in which Kant found and left it. Philosophy after him could only determine what was *a priori* possible on such themes as God, Freedom and Immortality, problems which it had started out to settle and now abandons as insoluble by philosophic methods, while science was willing and glad to escape responsibility for either their existence or solution. The curious function of "practical reason," which gave neither science nor philosophy, to supply a satisfactory argument for assertions which neither science nor philosophy could justify by arguments of any kind, was a useful sop to appease the appetite of Cerberus and allay the hungry instinct for persecution. If, therefore, philosophy can not solve the problems assumed to be appropriate to its methods and inquiries and amenable to everybody's "practical reason," the legitimate power to settle such questions without an appeal to rational procedure of any kind, we must expect the return of dogmatism again on the ruins of rational thinking and the natural abandonment of all philosophy as useless. Only science and superstition can remain in its place, the one for the study of external nature and the other for ignorance in regard to it, while the contemplatively inclined man can only sit as a beggar on the desert waste of his own theories and feed those hungry minds who have no sense of humor with the husks of the past. But human nature will not regulate its conduct by mere possibilities, especially when the pros and cons are equally divided. It will seek for evidence of what is a fact, and unless the "possibilities" of philosophy can give some credentials for probable or certain reality, they can not be respected, and if they do not, they are naturally treated as so much fiction. Consequently science takes the place of philosophic reflection, and Hecuba, forlorn and desolate on a lonely island, still mourns the loss of her children.

Ancient thought could speculate, but did less with the evidential problem than its theories required. Modern thought respects evidential considerations where it is scientific and not philosophic, and eschews metaphysical poetizing. In this it proceeds upon safe ground and

insists that all assertions shall substantiate their probabilities by facts or conformity to facts. This will make it necessary to examine metaphysical theories by this criterion, at least to the extent of determining their strength, if not their legitimacy. I mean, therefore, to investigate the controversy between materialism and spiritualism in the light of these two tests, not to determine their truth, but their strength as theories of existence. They do not have any interest for their mere possibility to the modern mind, but for their measure of conformity to the facts. Hence I shall examine them in the light of both their explanatory and evidential claims without pretending to dogmatize upon one side or the other, as I am more interested in having their problems frankly recognized than to presume to solve them.

CHAPTER X.

MATERIALISM.

I HAVE defined materialism in terms of its relation to spiritualism, and so indicated that it undertakes to explain all "phenomena" as resultants of composition. The elements which enter into this composition it calls "matter," as well as the compounds. The questions raised by the fact or assumption of change from the elementary to the composite condition do not yet come into court, but only the fact that its conception of all things involved this transition and the rise of "phenomenal" facts as the resultant of it. But materialism has taken two general forms. The first I have called pan-materialism, and the second psychological materialism. Psychological materialism is convertible with the statement that consciousness is a function of the brain or animal organism. This definition and type of the general theory means to explain the origin and ground of mental "phenomena" without assuming that the general cosmic problem requires to have been solved in order to determine the relation and meaning of consciousness. Its truth is supposed to be compatible with the belief that there may be other forms of reality in the world besides matter. In other words, psychological materialism is conceived as compatible with the denial of pan-materialism. It approaches the problem from the narrower field of human facts than that of cosmic facts on a larger scale. Pan-materialism may have two forms, the monistic and the pluralistic. The monistic type is best represented historically by the systems of Spinoza and the Eleatics, though there are aspects and conceptions in these systems which might suggest an injustice in the exemplification. The pluralistic type is best represented in the systems of Democritus, Epicurus and Lucretius, though there may be reasons for disputing the purity of the materialistic conceptions of some of them. But, granting the concessions in each case, they are the best concrete examples of the different modes of thought that can be selected. The monistic type of the pan-materialistic theory assumes one homogeneous substance throughout all space which simply "phenomenalizes" in the production of the facts as we observe them, and no other form of "substance" exists. The pluralistic type of this theory assumes an indefinite number of substances which it calls atoms

and accounts for all "phenomena" which are represented in two types of transient facts, "substances" that are compounds of these primary atoms or elements, and their modal activities or properties. But there are several reasons for not discussing each type by itself. In the first place, the values of facts depend, as we have seen, upon their ætiology and their degree of permanence. In the second place, all theories, whether monistic or pluralistic, have to take account of relative differences of permanence in "phenomena" without regard to question of ultimate causes, monistic or pluralistic. In the third place, both monistic and pluralistic theories have taken the same position with regard to the meaning and persistence of consciousness, the pantheistic view denying personal immortality quite as emphatically as atomic materialism. We should only have to change our mode of expression slightly in discussing the monistic theories instead of the pluralistic. Consequently, since the atomic doctrine of modern science perpetuates the historical conception of materialism we may best discuss the nature and strength of the materialistic theory in terms that will be more easily intelligible to the scientific man. The statement can be modified later for the monistic type.

Materialism developed into fairly definite form in the doctrines of Democritus and Epicurus. There were tendencies toward it from the time of Thales in the material causes to which philosophers appealed for the explanation of the cosmic arrangement about them. But materialism did not get clear expression and detailed treatment until Epicurus and Lucretius. What distinguishes their doctrine is the explicit affirmation of the eternity of matter and motion and the atomic nature of matter as a substance in its elementary form. These may be said to be the fundamental assumptions of materialism in all its later history. There was one more that was fundamental to the Greek form of the doctrine. This was that which regarded the direction of this assumed motion. Both Democritus and Epicurus held that this motion was downward. Democritus, however, held that there was a difference of velocity due to differences of weight, and hence the atoms could meet to form aggregates and compound wholes. His system required no additional "force" to accomplish union of the atoms. But Epicurus held that the downward motion of all atoms was the same in velocity, and introduced the free and spontaneous power of the atoms to swerve aside and come into contact with other falling atoms to produce the necessary union and composition which constituted the nature of the sensible cosmos. In the course of time, owing to the contradiction in the system which this assumption of Epicurus involved,

this free action of the atoms was dropped out, as also the downward motion of the elements, owing to the doctrine of gravitation, leaving as the fundamental assumptions of the theory the permanence of matter and motion with which to start in the explanation of cosmic "phenomena."

I shall not at present concern myself with the question of the legitimacy of this assumption, but with its naturalness to the Greek mind and its explanatory power. Whether rightly or wrongly, the Greek admitted the eternity of something, though he did not always explicitly assume or assert the eternity of motion. But he saw about him the fact of change, the fact which had produced the philosophy of Heraclitus, and the fact of union or composition of "substances" to produce the sensible realities about him, a fact which gave rise to all the systems of cosmology. All agreed as to the permanence of "substance," whether they took the monistic or pluralistic conception of it, but differed in regard to the manner in which cosmic arrangements were effected. Empedocles introduced "love" and "hate," or attraction and repulsion; Anaxagoras, "reason"; Aristotle, the "prime mover" or God, a *deus ex machina*, as causes of motion and change. But the materialists assume the equal eternity of motion or change with that of "substance" or matter. But how could Democritus and Epicurus make this assumption? The answer is that the Greek mind had no conception of the attraction of gravitation and hence it explained the motion of falling bodies by their weight, just as the untutored man does to-day, thus explicitly or implicitly assuming an *internal* "force" instead of the apparently external "force" of gravitation to initiate movement. If bodies fall because of their weight and there is an infinite space in which to exist and fall, they must be eternally in motion downward. Whether true or false, we thus see that the assumption was a natural one for the Greek mind to make and was in entire keeping and consistency with the ideas of the time. The same assumption also led to the Epicurean doctrine of the spontaneous swerving of the atoms. We see that the supposition that bodies moved themselves by their weight involved the idea of self-motion or internal action. It was only another application of this idea to have the atoms move themselves laterally. The conception was familiar enough in the Greek notion of various moving objects, such as the running streams, which came under the general idea of motion by weight. All motion was in fact conceived as self-motion where the cause of it from without was not observed. Hence the idea that all nature was animated by life. "Living water" came from the self-

motion of the water in the rivers and rills. Hence it was quite natural for the materialist to assume the possibility of self-motion in the atoms, not only downward but also laterally. But, natural as this conception was to the Greek mind, the doctrines of inertia and gravitation eliminated it along with the causal influence of weight from the assumptions of the materialistic theory and left only the permanence of matter and motion as the basal ideas of the doctrine.

Now there was another set of ideas associated with the theory which it is important to remark. The doctrine assumed both an identity and a difference between the facts to be explained and the facts with which the explanation was effected. The facts to be explained were the cosmos as sensibly "known," and the facts with which the explanation was effected were the atoms or elements out of which the sensible cosmos was formed. We may call the two "worlds" the sensible and the supersensible facts. I call the atoms a supersensible reality because, however they were described, they were not perceptible to sense experience. They were described by qualities which could not be actually perceived, but which were the same in *kind* conceptually as some of those that were actually perceived, namely, hardness, shape, size, weight, etc. Both the sensible and supersensible realities were called "matter." The natural reason for this was, of course, the Greek predisposition to monistic thought even when its philosophy was pluralistic, and also its naïve view of perception which neither realized the distinction between the subjective and the objective governing all modern thought, except perhaps in the Sophists, whose point of view was soon abandoned, nor assumed any antithesis between sensory and intellectual "knowledge" with the tendency to the method of abstraction from the sensory in the determination of the nature of things not actually sensible. Sense and intellect with them usually gave the same *kind* of "knowledge," at least in its essential characteristics, and hence with a predisposition to monism as against dualism it was only natural to the Greek to apply the same term to the complex and elementary form of "substance" in spite of the sensible form of the one and the supersensible form of the other. The modern theory of gravity and the indestructibility of matter as scientifically proved by means of gravity gives scientific justification to the assumption of the identity between the two conditions of this reality, a justification which the Greek could not make so clear, though he was probably influenced by it in his estimation of the material causes that entered into the formation of ordinary compounds. Modern experiment, however, has been able to isolate the invisible and supersensible condition of matter, and from the

effect which gravity indirectly produces *in* the sensible world (experiment of weighing gases after combustion) we infer the identity of the supersensible condition with the sensible in respect to its fundamental nature. The Greek, however, could not quite so effectively support his assumption, and hence had fewer facts and means at his command to dispute any attempt to question the right to call his elementary units or atoms "matter." But he made the assumption, whether with or without good reasons which we are not now investigating, and our problem is to see its effect upon the conceptions which governed the explanation of "phenomena."

We can understand the real or supposed explanatory power of the materialistic theory in antiquity only by observing the relation between its assumptions and others associated with the same stage of reflection. The modern scientist will remark much that is exceedingly naïve in the materialism of Epicurus and Lucretius and recognize certain fundamental weaknesses, but he will also acknowledge the lineage of his own speculative view of the world. The atomic doctrine and the theory of evolution are but extensions and improvements of the materialism of the Greeks, which began in naïve attempts to explain the cosmos. Greek speculations were so saturated with the assumption that the cosmos was a collective whole organized out of elements that it was quite ready for the atomic theory when it was proposed, and they had been forced by various influences to abandon the older anthropomorphic conceptions of the world's evolution or creation and began in the recognition of the "four elements" to admit the plurality of the substances which composed the world. All substance appeared to the Greeks to be permanent in its non-apparent nature at least, and Heraclitus in his conception of perpetual flux in the cosmos prepared the way to place the eternity of motion alongside that of substance, and there were minds, like that of Plato even, who were quite ready to accept this eternity of motion or change, provided we could also accept the existence and permanence of the substratum of which motion was a mode of action. This was the last most important step in the evolution of the idea of *fate* out of mythology into the "law of nature," a conception which represented a fixed order not admitting of any alternative courses in its tendencies and effects, and which was extended so much further by making motion, or the process of forming collective wholes in nature, as fixed as the materials used in the process, and whose changes, collocations, and combinations had presumably been regulated by some intelligence according to Anaxagoras, Plato, Aristotle and even the Stoics.

These could well concede the unchangeability of the materials of the cosmos if you would grant them the causal initiation of motion and change in the collocation of the elements. But the materialistic theory made motion, and apparently on good grounds, equally fixed as the materials involved in cosmic evolution, and as a consequence there appeared no reason or occasion for the intervention of supernatural forces in the regulation of things. Hence the gods that were allowed by grace to exist were placed in the intermundia and made to serve a function like that of Kant's "Ding an Sich." They could be known but they did nothing. They might watch events, but they could not make them. Now once having gotten the eternity of motion admitted there was a clear field for at least a plausibly mechanical explanation of the cosmos. Certain subsidiary assumptions had to be made in addition to the two fundamental facts and these subsidiary hypotheses were drawn from "empirical" observation, and the persistence of matter and motion through all conditions was not a direct object of experience, though assumed to be implied by it. The permanence of motion was supposed to be a consequence of the fact of weight in the elements which existed in empty space. As these were made to fall by their weight the problem to be solved by subsidiary hypotheses was that of collocation. Weight being the cause of motion in empty space, differences of weight would naturally give rise to differences of velocity in the falling atoms and thus contact and aggregation might follow. This was the view of Democritus, as we have seen. Also we have seen that Epicurus, in view of the equal velocity of all atoms downward, had to provide for free lateral movement in order to effect a union. But neither philosophy looked beyond the fact of mechanical aggregation and did not provide for any persistence even temporally of the collocation which they wished to show was possible in accordance with "natural laws." The doctrine of chemical affinity in modern times compensated for this imperfection. Neither did the older materialist tell us why the evolution should proceed from chaos to order, from separated to collocated conditions. He was content to explain, if only plausibly in terms of actual facts, the existing cosmic order, without raising questions as to the nature of the previous condition, though it is clear that he assumed it to be a chaos, just as all philosophers of that time did, whether the assumption were warranted or not. It was easy to conceive that collocation could take place after the manner supposed, if no questions were asked about the reasons for the *particular* order observed, and if the problem of internal and chemical action were disregarded. The Greek mind was

satisfied with mechanical collocation for explanation and it remained only to explain why a *particular* order was the result of the process. This was boldly said to be a mere matter of *chance*, a conception that was supposed to exclude purpose but to admit necessary causality. The theory thus stood for the exclusion of intelligence from the process of cosmic evolution and for its explanation by mechanical forces alone. Now mechanical action meant, not necessarily the initiation of motion from without, as it does with modern application of machinery, but uniform action according to a fixed "law" or set of conditions which were purposeless and which admitted no freedom, variation, or alternatives in the production of cosmic order. Finding matter and motion fixed in their nature and amount, according to the maxim *ex nihilo nihil fit*, and the modes of collocation and union dependent upon actions that no one presumed to regard as intelligently directed, the doctrine of mechanical creation or evolution only combined them in a way to suggest either the superfluousness of the supernatural, or the necessity of transferring its functions to conditions antecedent to those which were supposed to be existing facts and the recognizable cause of the "phenomenal" world. But as these antecedent conditions were the eternity of matter and motion, and the sufficiency of certain "forces," eventually assumed to be internal, to account for changes of direction and collocation, no supernatural antecedent was necessary, even if supposable as a possible explanation. Hence the original assumptions excluded the usefulness and necessity of intelligence from the cause of "phenomena," whatever relation to the order intelligence might be supposed to have when granted to exist. The materialist tacitly assumed that purposeful action must either be coincident with all motion whatsoever or be evidenced in the initiation of some change or modified direction of existing movements toward an end or result not naturally indicated in the existing order, but as the ætiological and teleological order in the first instance coincided there was no evidence of the teleological, and as there was no external initiation of motion in the system there could, on the second alternative, be neither teleological action nor the evidence of it. Consequently the materialist was satisfied with the ætiological explanation in mechanical terms, that is, in showing how a fact came into existence, and could not recognize any purpose involving the supposition of an initial cause other than existing motion and the "natural" properties of the elements. The crucial weakness of the theory was its exclusive application to the problem and explanation of collocation and not the dissolution of organic compounds, and

the admission of "chance" to slur over the appearance of teleological order which the assumption of "chance," whatever it meant, actually presupposed.

The materialistic theory has less difficulties for the modern philosopher than for the ancient because we have assumed or proved the existence of "forces" which are supposed to explain what the ancient materialists either ignored or did not know. We shall come to these when the modern view is more specifically described and defined. But it was an attempt to correct the older view which had various weakness. Among these, the first to be noted has just been mentioned, namely, the tendency only to explain the *status quo* of things, the present condition, and not the future order which was a result of a dissolution of the present. It had a means to explain how the present collocations of matter were effected, but it ignored the explanation of change back into the elementary state again, though this was quite as much an observed fact as any combination of elements. How the atoms could be separated after they once got together was not indicated. It sufficed, the materialist of that time thought, if he could explain how elements got together without extraneous and intelligent agency. But, though it was just as incumbent to explain the fact of dissolution rather than dogmatically state that it was a universal fact, he had no "forces" in sight to make it intelligible.

But a most important weakness of a positive kind in the ancient materialism was its theory of the soul, not because it was false, but because it was neither consistent with the mechanical theory nor necessary to the conclusion which was drawn in regard to its destiny. This weakness was not remarked, so far as I know, by ancient philosophers. The Epicurean theory of the soul was, not that it was a bodily function as it should have been regarded, but that it was a finely organized form of matter. To have made the mechanical theory complete it should have explained all mental activities and phenomena as functions of the collocations of matter represented by the bodily organism. But it conceived the soul as a material organism other than the body and hence mental activities as functions of another subject than the body proper. What the reasons were for admitting this view of the case is not a matter of importance, but only the fact that the admission was an inconsistency in the theory. No doubt the harmony of the supposition as a fact with preëxisting and existing beliefs availed to conceal the superfluousness and contradictory nature of the admission, as it was in entire agreement with previous philosophic conceptions of the "soul," human or "divine," as a refined form of material reality, but

this acceptability did not make it any more compatible with mechanical theories intended to subordinate all intelligence to organisms with which it was associated and to exclude the possibility of teleological action from the cosmos.

No less striking in the system was the Epicurean denial of the immortality of the soul after refusing to treat it as a function or "phenomenal" activity of the bodily organism. It was quite consistent with the prevailing belief, that all collocations of matter were transient and perishable, to deny immortality, but it was not necessary to go out of the way of the theory to assert the fact. If the soul was a refined form of organized matter existing beside and in the body, there is nothing in the dissolution of this body to necessitate the disappearance or disappearance of the soul from existence. If it had been treated as a "phenomenal" resultant of composition or bodily collocations of matter, its consequent disappearance at death would be a matter of course. But conceived as a form of matter, a substantive collocation of fine material elements, there is no inherent reason in this fact why it should be dissolved with it, even if it be intrinsically perishable as an organism; especially as Epicurean materialism was not advanced to explain dissolution, but the composition of matter. It was the belief in the transitory nature of all complex organisms that prompted the denial of persistence after death, but there was nothing in the conception of the soul's relation to the organism, as it was understood by ancient materialism, to necessitate its annihilation at the decomposition of the body, whatever might happen to it later owing to other assumptions. Hence Epicurus and Lucretius simply went out of their way to deny a doctrine which it was irrelevant to deny in a theory explaining the origin of things, unless mental functions were assumed to be an incident only in the composition explained. Modern thought would not suppose that death necessarily ended consciousness if it conceived it as the function of another than the bodily organism. It would have to suppose a second death or a coincidental death with the bodily organism on other grounds than that of bodily death to accomplish that end. So evident is this that the materialistic theory of the ancients would probably not have created any opposition but for this irrelevant denial of a religious belief. It was all the more unnecessary to make the denial because the materialist admitted the existence of the gods as a concession to religion, though he gave them no duties or privileges in the government of the cosmos, and he might have been as prudent or concessive in maintaining silence on the destiny of the soul, when its disappearance was not necessarily involved in the process dissolving

the body. He should have specified the cause for the simultaneous dissolution of the two realities, the "physical" body and the "soul." The point of possible attack on the theory I shall notice again when I come to consider the development of spiritualism. But the assumption that all organisms were transient was so prevalent, so axiomatic as it were, that the philosophic defect of the theory was concealed and only its attitude against the religious position recognized. Its causal weakness remained undetected. Hence what consistency it obtained with the assumption of the transient nature of all composite organisms it lost in its neglect of the principle of causality which was the more fundamental of its postulates and which required that the coincidence of the soul's disappearance with the body should be explained and not merely asserted.

Another important weakness in the mechanical theory was the assumption of free agency in the atoms to swerve laterally from their vertical motion in order to effect union with each other. The supposition was compatible enough with the idea of internal forces, but it was more gratuitous than that of weight to explain downward motion, because no sensible facts could be produced to make the hypothesis plausible. It was a pure fabrication to explain the fact of collocation which was impossible on the other assumptions of his doctrine. Nor could any excuse be sought, as Epicurus did seek it, in the necessity of defending the freedom of the human will, as his doctrine required him to explain away that freedom, not assume or defend it. If he was to accept the truth of free will, that is, the judgment of the mind as to that truth, it might be just as easy to accept its opinions on other fundamental conceptions opposed to his own. It is probable, however, that Epicurus and the materialists of the time conceived "freedom" of will after the manner of many persons of that age, namely, as implying *caprice* or the capacity to act lawlessly and in irregular unpredictable ways. This was consistent with the "chance" which he admitted into the interpretation of phenomena, but it was incompatible with the exclusion of purpose, which it was the object of "chance" to exclude. Free will involves purpose, no matter how capricious its action may be, so that the materialists of the older type would either have to surrender the free agency of the atoms or so change their idea of "chance" as to make it as consistent with teleology as they supposed it was with causality or ætiology.

There were several elements of strength in the theory. The first of these lay in the appeal to known facts. The "empirical" tendency of Aristotle to study the facts of nature in a way quite different from

Plato resulted in the attempt to find causes and explanations in actual "experience" as well as the phenomena to be explained, a procedure which was not completely effected by Aristotle, owing to the fact that his "prime mover" or God was placed outside the system. But he set the example of accepting sense perception as a more reliable source of knowledge than Plato, and it was only following his method to look for causal principles in "experience." Now the materialists remained *in* the system, and in it as sensibly observed, for their causes, and could all the more consistently do this, because Greek thought generally had this conception of causal action in spite of the appearance to the contrary. Even when it accepted panpsychism, creative intelligence, reason or first causes, these agencies were not only conceived as *immanent*, but were also conceived as differing only in degree of fineness from ordinary reality, not absolutely different in kind, nor *transcendent* in existence. Aristotle had thus departed from the prevalent conception of causality in Greek speculation when he conceived his "prime mover" as outside the system only to start it and then ever afterward to merely watch it in contemplative idleness, though he was consistent enough with the doctrine of inertia and the assumption that change must have a beginning and external cause. But the materialists had not acted on any clear assumption of inertia and hence returned to discover their causes *in* the system of facts and realities whose collocations and changes were to be explained, thus remaining by the most natural traditions of Greek philosophic reflection.

I have not explained why the fundamental assumption that "matter" was eternal or indestructible was a feature of strength to the theory and why it was so readily acceptable to Greek thought. The naïve conception of "matter" previous to the period of philosophic reflection was that of the sensible world. To this point of view "matter" was "phenomenal" or transient, perhaps without reference to its explanation in terms of composition but simply as a fact. But however this may have been, it was soon abandoned for the idea of agencies or substances that were not "phenomenal" at all, but eternal. This was brought about by the further observation that this "phenomenal" matter, transient reality, was also composite and that its transiency was in some way connected with its composite nature. Hence the change which demonstrated its transiency and dissolved its complexity required some explanation. The appeal first made was of course to *efficient* causes to explain the collocations and changes, but the Greek mind also wanted to know what the "*material*" causes of sensible reality were and these it conceived as some sort of stuff or substance

which might constitute the nature of composite things rather than explain how they became composite. Now "material" causes have always been associated with the idea of more or less identity between antecedent and consequent, so that the most natural assumption for the Greek mind to make in proposing the "material" cause of reality was to suppose that the essential characteristics of the compounds would be found in the elements, and this fact could well be taken as a justification for the extension of the meaning of the term applied to composite wholes to that of the elements. In this manner the term "matter" was naturally extended from the sensible to the supersensible world of atoms. Now while the conception "matter" was before applied exclusively to the sensible and "phenomenal" world, it now applied indifferently to the transient and permanent reality, both the "phenomenal" and the "non-phenomenal" condition of substance, and without any consciousness of contradiction or paradox. Becoming applicable to the persistent or permanent elements out of which sensible reality was formed, it denoted a fact which did not require explanation as did the sensible "material" world of previous thought, and all that was left to account for was the transition from one condition to another, not the passage from nothing to reality, as the theory of creative causality was afterwards conceived. We shall discover later another and similar extension of the meaning of the term "matter" as conceived in modern times. But in ancient materialism the inclusion of the idea of "matter" in the supersensible availed to evade a problem which is most naturally suggested by the distinction between sensible and supersensible reality. This is the question of the right to denominate by the same term implying their identity facts whose distinction as sensible and supersensible implies a difference. They may be partly identical and partly different, or wholly different. They could not be wholly identical without being exposed to the accusation that they really explained nothing in that they only substituted one "phenomenal" reality as the antecedent of another when it was "phenomenal" reality that asked for causal explanation. Hence the choice had to be between the two alternatives, partial identity and difference or total difference. The former was the position of materialism and the latter of spiritualism as developed later. But ancient materialism in taking the course which it adopted did not discover clearly, if at all, the problem involved in this extension of the concept "matter" to denote a world of reality which it had to distinguish so radically from the sensible world. If it had been content with "phenomenal" causation it might have been different, but instead of this it insisted upon the

supersensible explanation of sensible reality and it was a grave question whether it did not either evade an issue or beg the question in calling this "non-phenomenal" world "matter." Plato faced this problem and had his solution, and it refused to extend the conception of matter to include both realities. He retained "matter" for the "phenomenal" world of change and adopted "ideas" for the supersensible world, by which he meant the formative, active, permanent and teleological principles determining the sensible cosmic order whose origin, meaning and tendencies had to be made intelligible by them. But the Epicureans did not see that it was the differences between the sensible and supersensible worlds that remained unexplained by their conception of the process of evolution, as with all theories that rest wholly satisfied with the principle of identity or material causes alone in the explanation of things. They had started to explain the world by an application of the principle of material causation based upon identity in all its details, and were consistent enough both in their admission of a soul other than the organism and in the assumption of the persistence of motion, but they did not see or explain the rise of "phenomena," functions, modes of activity, properties, etc., in connection with organisms or composite wholes, that is, modes which were not present in the elements. The principle of identity which lay at the basis of their whole causal procedure generally did not account for these increments to the totality of existence. These modes were not found in the antecedents and must according to the standard of explanation adopted be independent facts of some kind. Now what were the causes of these additional facts? A step in the direction of the admission of efficient in addition to material causes was made in the recognition of the initiative agency of free movement laterally in the atoms to produce compounds, but we have found this inconsistent with the system on other grounds, and without it, or some equivalent efficient causal agency the increments cannot be accounted for on the assumptions of the ancient materialism.

Ancient materialism did not survive Græco-Roman civilization, having been supplanted by the spiritualism of Christianity, until the Renaissance and modern science revived it with improvements and changes, effected by conceptions and facts of which the Greek knew very little and in some cases did not suspect. What is implied by Chemistry on the one hand, and the great doctrines of Copernican astronomy and Newtonian gravitation, on the other, to say nothing of the immense mass of facts which led to and confirmed these hypotheses, was not suspected by the Greek. To the ancients "nature" was much

more mysterious than to the modern scientist and general observer of its course. Though we find the consciousness of a fixed order of things even in the mythological conceptions belonging to the anthropomorphic period of reflection, namely, the idea of *fate*, and that of invariable mechanical "law" in the late period of speculation characterized by the materialists and a substitute for "fate," yet this "law" was a very abstract one and not worked out in concrete phenomena by the use of "secondary" causes, as modern science does it. The conception was the vague general one that came from the observation of the most general phenomena of nature, and was the reflex of the consciousness of a power to which all finite things were subordinated, and subordinated in a way that made no room for intelligent and moral action in the system, which was always conceived by antiquity as capricious. But there was mystery enough left in nature after this universal "law" was admitted to make room for all sorts of supernatural hypotheses, especially that the mode of collocating the falling atoms in the Epicurean system appeared too simple and naïve to satisfy all questions. Hence in spite of the recognition of universal "law" there was room for such hypotheses as Aristotle's doctrine that the stars were "divine," the Christian interposition of God to create the supersensible realities which might form themselves into worlds in various ways, the later direct action of God to sustain the celestial bodies in their places or their motions, and various types of miracles to explain the "phenomena" that were apparent exceptions to this universal "law."

But modern science improved the atomic doctrine so that it could really or apparently solve problems which the ancients, if they had fully realized them, would have been obliged to abandon as inexplicable by their assumptions. For instance, after admitting that impact due to the lateral swerving of the atoms resulted in rebounding, how could the ancient materialist either obtain a reunion or assure any fixture to his collocations. Even his mechanical union could not remain with any permanence whatever on his own principles. Hence he needed chemical affinity to both prevent immediate separation after swerving had produced contact. Again I have called attention to the fact that ancient atomism could not account for the appearance of new qualities in the compounds that were not found in the elements by any application of the principle of identity, especially that it took a monistic view of the nature of the atoms. These were supposed to be all of the same kind and differed only in shape, size, weight, etc., that is quantitatively, not qualitatively. Nothing was said about their pos-

sessing individually all the qualities, as in the Leibnitzian monads, which might account for the variable and multiple qualities of sensible reality. Anaxagoras solved this question by supposing that the original elements, homoiomeriæ, differed in kind but represented in nature the quality which appeared in the compound. That is, the elements carried over into their compound the qualities which it possessed, so that the doctrine of "material" causation was consistently adjusted in his system, efficient causality having been invoked in the activity of reason disposing the cosmic order of composition or collocation. The homoiomeriæ differed in kind in comparison with each other, but not in comparison with their compounds, except as these compounds represented different collocations or combinations of elements, and established an identity between the elementary and the composite condition of "matter," intelligence being the agent of the combination. But the Epicureans could not take this view of the case, for the reason that they admitted no intelligent disposing agent and there were no differences of kind between the atoms, so that the principle of identity embodied in their "material" causality had a variation before it which it could not explain, even though its mechanical conception of efficient causality in the lateral swerving of the atoms be admitted either as a fact or as sufficient to account for the combination of them.

But the modern atomic doctrine got rid of all these difficulties attending the application of the principle of identity to two worlds and of a superintending or disposing creator by affirming frankly the difference in kind of the atoms and the installation of a system of internal "forces" which would supplant the necessity of an appeal to external agencies like intelligence. The assumptions of qualitative differences in the atoms and of internal "forces" were complementary of each other, as the modern view of the atomic and supersensible reality was a sort of compromise between the conceptions of Anaxagoras and Democritus. While it assumes qualitative differences in the elements it does not assume numerically as many kinds of elements as the Anaxagorean theory has to do, in order to explain all the differences in the sensible world, but introduces the conception of internal modifications or the evolution of actual qualities from latent or potential capacities in the combination of the elements, thus not making the number of elements equal to all the observable qualities of sensible reality. On the other hand, while assuming the capacity of modifications internally initiated to account for qualitative differences in compounds that were not found in the elements, this conception was limited by the admission of a limited qualitative difference among the

atoms. It was possible to have been content with one or the other of the assumptions, either the Anaxagorean involving its conception of differences equal to those of sensible reality, with internal forces only to combine them, or the Democritean involving absolute identity and simplicity in the atoms, with internal forces to modify the modes of activity represented by the qualitative differences in sensible reality. But modern atomism has adopted both hypotheses with limitations and qualification, possibly for greater security from difficulties. But whatever the influence that led to it, the assumption is as described. The Leibnitzian monads, which are essentially atomic in their nature, were a sort of combination of all conceptions inasmuch as each individual possessed all the complexity qualitatively that the sensible world possesses with only quantitative differences in the qualities possessed as compared with other monads, and without any mechanical or chemical influence upon each other. The general scientific neglect of this conception, however, makes it unnecessary to more than mention it in this connection and only to show its logical lineage. The actual development of the materialistic theory, Leibnitz claiming that his was not materialistic, was in the direction of the assumptions just outlined previous to the observations about Leibnitz. But recently, in the speculation of Sir Oliver Lodge, Sir William Crookes and others, there has been a reversion to the ancient assumption that all the atoms were qualitatively alike, with a tendency to believe that even the "atoms" are not perfectly simple, but compounds of some still more simple and ultimate realities, though they may still surmount the difficulties of the ancient theory by the supposition of internal "forces," or latent capacities for variation of activity, to account for the differences of sensible reality. How these assumptions affect their explanation may be a matter of doubt. With that question I have nothing to do at present. I am only indicating in what manner modern atomic materialism endeavors to eliminate the difficulties encountered by the ancient. The development of the modern doctrine is as follows.

First we have Copernican astronomy which destroyed the ancient conception that the earth was the center of things, or the point toward which all things moved, or at least the point from which all things had to be explained and estimated. The whole naïve sensible idea of the universe was completely altered by it, forcing speculative thought to reconstruct its theories of the formation of the cosmos in many respects. Then came Newtonian gravitation which placed *in* matter, instead of the direct intervention of God, the power to influence the behavior of the planetary and celestial system and to balance the motions whose

conception Copernicus had modified. It was quite natural that Newton should be attacked for materialism and atheism, as there can be no doubt that his use of an attractive "force," in spite of his actual qualification of the principle by the statement that it was a mathematical representation of the relations rather than an indication of efficient causes, suggested an origin *in* matter instead of outside it of the influence that regulated the motions and positions of cosmic bodies. Then came the nebular hypotheses of Laplace which did for time in the cosmos what Newton had done for space. It used the dissipation of heat and attendant or concomitant consequences to explain the gradual formation of the present collocations of matter in the universe instead of appealing to supernatural action. Finally Darwinian evolution did for the organic world in time what Laplace had done for the inorganic and Newton did for space in both the organic and inorganic. Nothing was left for appeal to immaterial "forces" in any of these great hypotheses. In addition to these, out of alchemy came Chemistry with its doctrine of affinity between atoms to explain their combinations, and with the assumption that the elements differed qualitatively from each other. The conception of internal "forces" became so extended as to wholly supplant that of supernatural interference or action as conceived by the period intervening between the decay of Græco-Roman civilization and the revival of modern learning. The atomic doctrine was so conceived as to account for all the real or supposed differences and identities between the sensible and supersensible worlds and to leave no room for external efficient causes as previously conceived.

Ancient materialism, if called upon to account for the sensible differences in things with its principle of identity, "material" causality, and only quantitative differences in the atoms and no creative function in such efficient causes as it imagined, would have to say that all qualitative differences were illusions, and not representative of reality. It would very well seek justification for this view in the psychology of the Sophists who maintained the subjectivity and relativity of all sensory "appearances." In this way the supersensible world could very well be supposed to retain its identity in the "phenomenal," in so far as its real nature was concerned, while the appearance of their differences qualitatively would be an illusion. The illusory nature of some of the sense judgments was actually admitted by some of the materialists. But there was a Nemesis in this concession to what may be called the idealistic criteria of truth, not because the subjective point of view in any way displaces the problem of transiency and permanence,

but because the original basis of the materialistic judgment was what was supposed to take place in the sensible world. The ground for the persistence of motion was the sensory observation of what weight effected in causing bodies to fall in empty space or a non-resisting medium. But we cannot play fast and loose with sense perception, accepting it when it favors our assumptions and rejecting it when we get into difficulties with it. We can hardly accept sensory criteria for the identities and reject them for the differences in the sensible world. Our judgments must be consistent and drawn from the same source. But the modern reconstruction of the theory eliminates these difficulties partly by the supposition of qualitative differences in the atoms and partly by its conception of internal "forces." What the qualitative differences might not explain the internal activities might and *vice versa*. On the one hand, the discovery of a limitation in the number of elements made it necessary to likewise limit the influence of qualitative differences which did not correspond to the rich variety of nature, and on the other the evident limitations to variation and production of qualitative differences in the various elements was very well complemented by the actual variety of qualitative distinction in the atoms, so that between the two assumptions almost any difficulty could be surmounted. In addition to this, the subjective point of view was admitted to explain certain facts without asserting that they were illusions, even though the sensory presentation did not "represent" or show any features of identity between itself and its cause. The principle of efficient causality could be invoked to eliminate the assumption of illusion while subjectivity could be invoked to suggest the place of non-sensory judgment in the determination of the nature of the reality which was to be explained by the atomic theory. But even with all its advantages in this complex adjustment to the needs of the materialistic doctrine, the recognition of the subjective limitation of "knowledge" or the "non-representative" nature of sensory judgments, so to speak, carries with it the suggestion of revolutionary methods and postulates. It insinuates that the idealistic method is the proper one, and if we accept the position that idealism is in all its aspects opposed to materialism, there is in this admission of the idealistic postulate the beginning of the end of materialism. But distinguishing, as I do here, between the epistemological question of the source of "knowledge," in which the idealist may be correct and the metaphysical question of the nature and action of the "real," whatever the source of our "knowledge" of it, the materialist may still be consistent if he abides by the position that intellectual instead of sensory

processes shall be the determinants of his judgments, and if he maintains that, whatever the nature of any reality assumed the relations between it and its "phenomena" remain the same and that it is his problem to determine those relations in terms of the conception of fixed "law," or uniformities of coexistence and sequence which better consist with the fact of observation than ideas that at least apparently imply their arbitrary variability.

But omitting the point of attack by idealism for the present, the circumstance to be remarked about the change from the view that all qualitative differences in the sensible world were represented in the supersensible world only by quantitative differences, to the view that there were qualitative differences in the supersensible as well as in the sensible world, even though the conception of "qualitative" and "quantitative" had changed in the meanwhile, was a step in the direction of abandoning the simplicity of ancient materialism. It supposed the self-existence of various *kinds* of matter or reality, which nevertheless are so harmoniously adjusted to each other in their relations and interactions as to suggest the same questions that are proposed by the various relations, interactions, and similarities and differences in the sensible world, questions that ought not to be asked of a world supposed to be inexplicable in every respect. In ancient materialism the only query possible would regard the matter of number, that is, why the atoms should be plural at all. The modern query would have to concern qualitative differences as well as numerical plurality in the ultimate elements of reality. This increases the complexity of the modern theory. That it proposed a speculative question beyond the assumed fact of qualitative differences is shown by the circumstances that the atomic elements became subject to classification by Mendelejeff with the result that the doctrine of evolution apparently became applicable to the very atoms! Originally the atomic theory assumed that the elements were underivable, ultimate and eternal, but this explanation of them from some more ultimate and simple form of matter subjected the very elements to a derivation which Greek materialism intended to stop with the sensible cosmos. This conclusion is an abandonment of the atomic theory of matter, and if materialism remains at all after it the conception of matter has changed to the Spinozistic, and only internal "forces," whatever these mean after this change, are left to explain the qualitative differences of "matter" as it is sensibly known.

There is another consideration which gave ancient materialism some advantages. Inertia played a very small part in it. The initial

impulse to the doctrine of falling bodies did not suggest it as a fundamental property of matter, nor was it required to keep bodies in motion when this was once initiated. Anaxagoras and Aristotle assumed it, whether consciously or unconsciously. Otherwise there was nothing to justify the supposition of reason or the "prime mover" which was postulated to originate the motion and cosmic order about them. But neither they nor the materialists worked out the doctrine of inertia explicitly. It would, in fact, most probably have given the materialists some trouble, as its primary conception was that of the natural and essential inactivity of matter, "being" having always been conceived as naturally at rest, and so requiring either external or self-activity to start it in motion. To have assumed inertia as the essential condition of matter in the former sense and in the sense that all "being" was naturally at rest would be, for the materialist suicidal, as it was the external supernatural agencies which he wished to banish from the government of things. But fortunately he could rely upon certain sensible facts to suggest a natural and internal influence to originate and continue motion in bodies. This, as we have seen, was weight. We shall see again what use the spiritualistic movement made of the ancient conception of inertia where it was assumed or admitted at all. But it had not always retained the meaning which it first had. As I have said above, and repeat for emphasis and clearness, it first meant the original and natural inactivity of "being" or matter (substance). There were two alternatives before the mind in the explanation of motion or change under this assumption of the natural inactivity of matter. The first is self-activity, a conception which ultimately took the form of internal "forces" wherever the materialistic theory prevailed or influenced the mode of thought. The second was external agency, which was the direction taken by Aristotle and Christian spiritualism. This latter position also assumed that matter was incapable of initiating its own motion, so that the assumption of inertia implied by it involved two conceptions, the idea of original rest or inactivity and the idea of inability of matter to initiate activity or motion of itself or in itself. But the materialist of that time had no occasion, as he thought, to take either of these conceptions of the case which would force him to accept a supernatural agency to originate motion, because he had a *perpetuum mobile* in weight, which he conceived as an internal agent. This he did not imagine to have initiated motion once for all and then leave it to inertia to explain its continuance, but he made it a *creatio continua* of motion and hence he had no use at all for the modern idea of inertia. Why then does modern

thought make it so important a property of matter? Why has the materialist introduced it and retained it in his system?

The answer to this question is that he has borrowed or stolen it from the spiritualistic philosophy which he aimed to refute and does not acknowledge its pedigree nor see its contradiction with his own system, if interpreted in its old implications. Hence he had to partly change its import to make it consist with his assumption of the perpetuity of motion and to escape its contradiction with the idea of internal "forces." Having abandoned the assumption that rest was the original and natural condition of things, since he had in weight a cause of perpetual motion, an internal agency, he could introduce the idea of inertia into his system only on the condition that he changed its meaning. This he proceeded to do. He dropped its implication of original rest, as he was compelled to do, and conceived it as the negation of causality of any kind, and hence defined it as the incapability of producing either motion or rest. This conception leaves open the question whether motion or rest is the original condition of "being" or matter, and simply implies that either of them will be the perpetual condition of reality if it is the original one, unless some cause intervenes to change this condition. Whether this cause shall be internal or external, "natural" or "supernatural" is not implied or determined. The conception implies only that matter is unable to effect any change either of motion or rest. But even this had to be carefully limited to consist with the assumption of internal "forces," which was made to escape the necessity of admitting the external. Inertia had to be limited to the idea of incapacity to alter the condition of motion or rest in the subject of it, and not necessarily to deny the power to influence change in the condition of objects or other realities than the subject of internal "forces." The difficulties involved in this tight-rope process of escaping a precipice will be considered again. But it certainly offered an advantage to the theory in the chance to assume the action of internal causes acting on external objects, while it retained all the older implications denying the possibility of self-motion. This, of course, involved the distinction between self-motion and self-activity, the one being denied and the other affirmed, at least tacitly. The advantage of this position to materialism lay in the use of a term which denied by implication and historical association any assumption of free spontaneous motion laterally or vertically, as it had been granted laterally by Epicurus, and which at the same time assumed a condition of things that justified an appeal to external causality to explain change when it was desirable to resort to this, and also in the use of a concep-

tion to consist, under proper definition, with internal causes which might be assumed at pleasure, provided they did not explain the subject's own motion, to escape the resort to anything like supernatural and self-initiation of motion in the subject. In other words, the advantage lay in the free use of assumptions which were contradictory, in the old view, if you could succeed either in concealing the contradiction or in producing any real or apparent consistency of the idea of inertia with that of internal "forces." This latter alternative was effected by permitting the invention of any number of internal "forces," provided they had no analogies with intelligent volition which involves self-motion, and by limiting the conception of inertia to the inability of the subject to move itself or to prevent self-motion, a position which left wholly indeterminate the question whether motion or rest was the prior natural condition of matter. In other words, the materialist admitted just so much of the spiritualist's conception of the problem as would enable him to escape the assumption of self-initiative for everything and just enough of the materialist's to exclude intelligence from the internal "forces" which even the spiritualist was quite ready to grant. The logical advantage of this position is apparently invulnerable. As all explanation was occupied with change from one condition to another, this position enabled the materialist to agree with the spiritualist in two assumptions while he confused one with the other. The first was the doctrine that all initiation and cessation of motion, or alteration in the direction of motion, involved causation outside the subject of the motion, and the second was the doctrine that all change of the *status quo* in matter must have a cause. The latter axiom is compatible with any cause of "phenomena," internal or external, free or determined: the former excludes motion from the category of internal causes. The second or general maxim enabled the materialist, if he chose or the facts permitted, to assign internal causes for all changes but the motion of the subject of it, and the first, limiting inertia, enabled him to concede a field for external causality without committing himself to the admission that motion *per se* was necessarily "phenomenal" or had a beginning, whatever might be thought about alterations in its direction or its cessation. This external cause, or cause external to the subject of the motion to be explained, by the very nature of the case as a consequence of accepting causality of any kind, implies the idea of internal causality in the agent initiating the "phenomenon," if change as a fact in the cosmos is admitted at all, but with the proviso that the internal causation for the produced change is not in the subject of that change. Now if that cause can be put in other atoms

than the one affected, or whose motion is to be explained, the limited liabilities of inertia are satisfied, while the supernatural is either really or apparently eliminated, as we are supposed not to transcend "matter" for our necessary causes, the origin of motion being no longer implied by the doctrine of inertia and the existence of internal causes of some kind in matter being assumed or admitted. In the last conception of the problem, therefore, having gotten a conception of inertia which did not commit him to any assumption regarding the primary condition of matter, whether of motion or rest, and which enabled him to use external causality for the explanation of changes in the direction of empirically observed motion without going beyond the "phenomenal" antecedent before him, this being external, the materialist could abandon the *regressus ad infinitum* which "first" causes apparently demand, and consistently with the limited liability of inertia throw the whole responsibility for the explanation of events of all kinds upon the interpretation of internal causes and their mode of influencing external objects, and which, though they could not originate motion in the subject of it, might cause it in the object. This brings the problem right to the threshold of the controversy between the "mechanical" theory of materialism and the philosophy of Leibnitz. But of this in its place. The point to be emphasized at present is the advantage which materialism had gained by accepting the general idea of inertia while modifying it to suit assumptions which the doctrine of inertia did not originally make, while it could suborn the idea of internal causes under cover of empirical facts which took the problem out of the supersensible world and transferred it to the sensible, though it seemed still to be discussing a theory of creation that could only begin in the supersensible world.

To look at the historical steps in this development, we have the philosophy of Anaxagoras and Aristotle, and at least to some extent that of Plato, assuming the inertia of matter in their resort to creative or formative intelligence, and the same idea had prevailed in the common mind more generally in its religious and mythological views, while it was probably tacitly assumed by the materialists in the practical affairs of life when they were dealing with "phenomenal matter." But in their metaphysics they ignored the assumption, consistently with their disrespect for mythological and religious postulates, though they did not object to calling the supersensible world "matter" and obtaining the double advantage, in the explanatory function of their theory, of ignoring "common sense" conceptions of inertia when they interfered with the integrity of their metaphysics and of eliminating the

conception of an immaterial reality by describing the supersensible as "matter." But in the attempt to refute materialism in antiquity the doctrine of inertia came to the front. It was a strategic point in theism to urge the fact of inertia in order to justify the appeal to the *vis a tergo* principle of creative intervention to start the motion or change which the philosopher was called upon to explain, and he could use the assumed identity between the sensible and supersensible worlds, in their essential characteristics, to enforce the possibility or probability of his claim. But once assumed as an essential property of "matter," "phenomenal" or "noumenal," sensible or supersensible, it created at least an apparent difficulty in the materialistic theory wherever any change from the *status quo* of things required an explanation, unless the theory could be modified in some way. As soon, therefore, as the doctrine of inertia was made a limited instead of a universal postulate to explain change, the need of causes to take the place of what ancient materialism had to abandon after Copernican astronomy was adopted was supplied by the internal "forces" of chemical affinity and of gravitation. For, although the attraction of gravitation assumed that matter could not move itself, it was adapted to the new conception of inertia in the idea that it could influence the motion or condition of other matter. Hence the conceptions of inertia and internal "forces" were so adjusted to each other that the origin of motion was not a part of the problem and chemical affinity and gravitation were convenient substitutes for causes that had once been conceived as related to intelligent volition. In other words, the adjustment brought materialism, reciprocity without freedom and all the advantages that belonged to both. The limitation of the area for the application of inertia was supplemented by a corresponding extention of the area for internal "forces," having no special evidence of being intelligent or purposive.

There was an important influence which fortified this tendency and which is seldom remarked by the student of philosophy in its psychological development. It is the influence of experimental science on the ideas which we entertain on the capacities of matter. Antiquity simply observed the course of events as they occurred, taking the part of mere spectators of the drama of nature, a series of "phenomena" which occurred without human intervention. All philosophic reflection was contemplative, not experimental. No elaborate attempt was made to study nature as it might be modified in its action by the human will, though men were familiar enough with the common influence of human volition on events. But it did not occur to men to take seriously the point of view which might have suggested itself to them,

especially after the subjective psychology of the Sophists and the "idealistic" philosophy of Plato with its anthropocentric point of view. Ancient thought, however, was so dominated by the consciousness of man's subordination to nature that it could not muster up sufficient courage to defy it, except in Æschylus, and the sense of dependence was so strong that it trembled at nature and fate instead of trying to master them. Consequently between contemplative or introspective methods and the consciousness of subjection to nature, it could only regard events as the effects either of "nature" or of the gods. Either conception encouraged the idea of limitations to the powers of "nature," and the latter view required no assumption of latent powers in matter to account for variation of effects, as these could be attributed to the caprices of divine power. Consequently there was little to suggest latent or potential capacities in matter. But men, being mere observers of an order that might originate either spontaneously by some internal forces or by external creative energy, they divided on the question of the nature of that antecedent according to various intellectual and other interests, some making it intelligence and others "force" or inherent properties of matter. If the cosmos showed satisfactory evidence of purpose in its collocations and organic creations, and the conceptions of the untutored are easily satisfied on this question, there would be a tendency to make this cause other than matter. If the evidence of purpose be wanting, then the explanation will eliminate intelligent initiation. Now as both the series of events and the alternative causes imaginable were objective and independent of human action, this, being presumably free, was caused by neither divine nor material agency. But natural events being the same to all observers, left the choice of cause to prejudice or the amount of intelligence displayed by the observer. But when man began to reflect on the effect of his own volitions and to experiment with nature, he found a created order of facts initiated by himself and not spontaneously created either by "nature" or by "providence." He had to recognize, however, the limitations of his own causal power in the determination of events. He could not well ascribe the limiting influence directly to divine action, as his conception of that influence was not such as to reduce its providential plans to the caprices of human volition. He found in his experiments that he could not produce gold or silver by wishing them, nor by combining elements *ad libitum*, but he did discover that he could produce chemical compounds and make collocations of matter which did not occur independently of his volitions. They seemed too trivial, however, for explanation by so august a reality as God, who

could hardly be supposed to conform at any time to the whims of man's fancy, scientific or practical, to institute an order of events which man would hardly have supposed to have been in the divine plan if his own experimental volitions, themselves presumably free, had not occurred. The consequence was that it seemed to comport more easily with the idea of internal "forces" in matter to account for the limitations of experimental effort, and this view was favored by the absence of clear evidence for any purposive end in any assumed intervention of divine power to affect the results which could not be directly traced to human action. Besides there was universal tendency to save divine action by supposing that matter had no powers whatever to produce effects under the initial agency of its own "forces." Many, on the other hand, assumed limitations to divine power in the nature of matter. Hence men were quite ready to admit that the explanation of events might divide its causal agencies between God, nature and man. But in proportion as the divine intervention was either not supported by evidences of its teleology, or was not deemed necessary to explain the facts of human experiment, the idea of internal "forces" in matter grew in strength with a corresponding favor for the materialistic theory, and when man himself was conceived as a mechanical product of the cosmic order, and hence his action simply a little more complex form of mechanical "forces," the materialistic point of view became universal, having the simplicity and unity, apparently at least, for which the philosopher has always been in search. The concession of internal "forces" for producing effects and the changes which human volition could effect in the order of things predisposed speculative minds to take that course in their explanations of "phenomena" which would at least seem to reduce the source of events to as few centers as possible, and matter had come in for such a large share of the "forces" which affect events that it was an easy step for the mind to universalize its causal agency, especially as there were difficulties in reducing the cosmic order to any clear and evident teleology, even within the domain of the sensible world, to say nothing of the agnosticism necessary with regard to it in the supersensible world.

A most important step in the confirmation of the materialistic theory was the establishment of the essential identity between the sensible and supersensible realities. It might have been suggested by the variable limits of sensible "experience." But the normal limits of this were so fixed apparently that no one but the philosopher would suspect the speculative importance of the variations actually observed, and even this class was either too much addicted to respect

for sense judgments and too much interested in the acceptance and defense of this criterion of "knowledge" to be spontaneously susceptible of sceptical influences in this direction, or had too few facts to make any successful incursions against the conservative ideas of "common sense" in its convictions about those limits. Consequently it took the help of the microscope and telescope to bring home the relativity of sense perception and its variable limits, showing that the distinction between the "sensible" and "supersensible" worlds, when any question of facts and "experience" was involved, was not necessarily qualitative but merely quantitative, if the latter term may be employed to express a condition indicated by the variable limits of sense perception. They simply showed that it was merely a question of "sensible" capacity that determined the distinction between the various conditions of matter which had been assumed to be radical, but which now appears to represent an essential identity in nature though not always represented in a sensible effect on "knowledge." But it was the experimental proof of the indestructibility of matter that operated as the most decisive defence of the application of the term "matter" to the sensible and supersensible worlds alike. It showed that "matter" may disappear from sensible "experience" altogether in its normal forms and yet through its gravity give indirect testimony to its continued existence after it has apparently been destroyed. Ancient thought was confronted with much more fixed limits to sensibility than modern investigation and also had not exact means for determining conclusively the survival of material substance in all its changes, and hence in these changes certain philosophers might claim with considerable impunity that matter was destructible. But this contention can no longer be made in modern times, except for those transcendental conditions which are not accessible to either observation or experiment, and it is not necessary to have an opinion one way or the other on such questions when we may insist that we are not dealing with matter beyond its evidential "phenomena." All that is meant by the modern doctrine is that in both the sensible and supersensible worlds of past philosophic thought matter is indestructible and that it shows itself identical in its essential characteristics in both. This is "empirical" or experimental proof of its continuity and persistence in time where ancient thought could only arrive at it in an *a priori* manner, a method which had proved itself so precarious that any intellectual interest might appeal to it with impunity until experiment decided whether any of its claims were true or not. But the experimental proof of the indestructibility of matter

established the right of the materialist to assert at least a presumption for the eternity of matter. He has definite proof that it is indestructible for all human effort and can only speculate for conditions transcending his powers and amenable to some real or supposed absolute. But the important fact to remark is its confirmation of the assumption that there is an identity between the various conditions of matter as the ancient materialism supposed, and no less instructive is the equally established fact that certain modes or functions of matter are transient or "phenomenal." The application of this truth to psychological events will be made presently, and after we have noticed the various ways in which this general truth is illustrated in the metamorphoses of material substance, involving the appearance and disappearance of "phenomenal" qualities. One of the best illustrations of this retention of identity of material with different qualitative manifestations is the fact of allotropism in which the same substance, for example, sulphur or carbon, under different conditions will show different qualities, the difference being so great that it requires special evidence to discover that they are not distinct substances. Compare charcoal and the diamond. We might also rank H_2O in the same class: for it may appear in one condition as invisible vapor, in another as cloud or visible vapor, in another as water in a fluid state, both visible and tangible, and finally in a solid state as ice. Only a change of temperature is required to effect these qualitative modifications and but for special means to determine the fact no one would suspect the identity of the substance in these changes of functional manifestation. A still more striking illustration is that of isomerism. Allotropism shows the qualitative alteration of the same element or atom: isomerism a qualitative alteration of the same quantitative combination of elements under special conditions, the change of conditions being so slight in some cases that it need be nothing more than the source from which one of the elements in the combination is obtained. We have in this isomerism an example of variation from the general law that identity of elements in the combination produces identity of compounds. Experiment, therefore, shows that both elements and compounds may exhibit qualitative modifications in spite of their identity in substance when the proper causal conditions are supplied. The same general fact is shown on a wide scale in the various conditions of gaseous, liquid and solid bodies under the appropriate circumstances.

The deep significance of all this for materialism is not the mere fact of such changes in the material world but its bearing upon the question of what is transient and what is permanent. The facts prove a double

conclusion. The first is the permanence of substance and the second is the transiency of certain qualitative manifestations or functional activities of either elements or compounds. What is the resultant of composition is invariably destroyed by decomposition, except weight, which is not a resultant of composition, and possibly some ordinarily concealed properties. The qualities that appear in composition are the resultant of functional activities elicited by the conditions that enable the composition to take place, and disappear with the dissolution of the organism so effected. The instant bearing of all this upon the "phenomena" of consciousness is apparent. If we suppose that consciousness is an incident in the functional activities of the bodily organism which is a compound of many elements we can see that all the evidence everywhere else is in favor of its transiency and disappearance at the dissolution of the body. Such a conception of the case had less to support itself in antiquity than at present. There was little or no scientific evidence that the supposition of identity between the sensible and supersensible worlds was a fact and as little to make clear the rich capacity of matter to modify its qualitative activities in the various conditions of existence, and hence the ancient philosopher could not so easily specify the evidence for a "phenomenon" which he wished to use in explanation of mental functions. But the moment that investigation revealed the enormous extent to which qualitative change in matter is possible in spite of its substantial identity, the fact opened the way to sustain some probability that this capacity might extend to the explanation of consciousness, and this independently of all questions whether mental activities were to be regarded as modes of motion or not. It is not necessary to reduce all the qualities of matter to modes of motion. There may be any number of its functions that are not motion of any kind. Besides even if they must be so reduced our knowledge of what consciousness is is so limited that it might be anything. But this question aside for the present the important thing to be emphasized is the fact that the evidence of qualitative change in identical substance is now so extensive and these changes so numerous and representative of apparently unlimited capacities that a strong presumption is created for any supposition that wishes to make consciousness a modal function of material organization and dissolvable with it. Ancient materialism had less to enforce its truth or probability. In fact its habit was to ignore the evidential question in all but the most superficial matters and so to indulge hypotheses where they could be made with the most impunity, and hence to be satisfied with the impossibility of denial by opponents. But this is no longer the case with

the modern application of the materialistic theory. Its conquests have shown the existence of just the facts to suggest capacities in matter at least apparently equal to the production of consciousness, especially as there is no evidence whatever outside the alleged "phenomena" of psychic research that consciousness has any connections or associations independent of the bodily organisms with which we find it, and these are admittedly transient or "phenomenal." Matter has been proved to be capable of much that was never before suspected as possible, and the fact puts decided limits to dogmatic opposition to the materialistic explanation of consciousness.

We have found that materialism has finally succeeded in establishing empirically the assumption with which it started, and this was the persistence of matter in all its changes and also the transiency of its "phenomenal" modes, when anything interfered to disturb the integrity of its organic compounds. But there is one more step in its development which really or apparently establishes its second postulate, namely, the persistence of motion or the quantity of energy in existence. This was effected through the doctrine of the "Conservation of Energy." This doctrine gets its clear conception and value scientifically and philosophically from the empirical proof which science has given it, but it was practically involved in the assumption that the essential basis of existence must be eternal. The Greeks said "being" was eternal, and when this "being" came to be definitely interpreted it turned out to be "matter," though the predicate of perpetuity had to be confined to its supersensible form. Christian thought conceded the principle when it assumed the ephemeral or "phenomenal" nature of "matter" and affirmed the eternity of God. All agreed that something was permanent and eternal, whatever the evidence for the assumption. But they did not all agree that motion was eternal, as we have seen in the Aristotelian and other forms of philosophy, especially that of Christianity which sought to justify the existence of all transphysical reality by the universality of inertia and the essentially finite and temporal character of motion. The materialists, however, assumed the coeternity of motion with matter and required only the initiating agency of internal "forces" to explain the "phenomena" of change, which it confined to the modification of the *direction* of motion and the qualitative modification of properties. It remained to discover facts that really or apparently support the materialists' conception of the persistence of motion or "force," and which added to the explanatory power of the materialistic theory.

It was Descartes who suggested the modern conception of material-

ism in its "mechanical" interpretation as implying the translation of motion from object to subject. He effected this result in spite of the idealistic impulse in his metaphysics on the spiritualistic side. His "mechanical" philosophy was held, however, in subordination to his spiritualistic theory, whether consistently or not, though he no doubt thought it consistent. But his physical speculations are usually ignored by all but physicists, because idealism has taught us the bad example of ignoring all discussions of physical "phenomena" in any other terms than "states of consciousness," and hence succeeds by various subreptions in cultivating an opposition which its own reduction of facts makes impossible, and, as we shall see later, falls into the same pit as the materialism which it affects to despise. Its monism prevents its opposition to the essential features of materialism just as much as the monism of materialism in its later development prevents its opposition to spiritualism or "idealism." But we shall not understand even the "idealistic" side of Descartes unless we conceive it in its relation to the materialistic. His dualism was not that of realities equally coördinate with each other, but as fundamentally different in nature while the spiritual occupied the priority of value and causal initiation. This position enabled Descartes to concede one half the universe of "phenomenal" reality to materialistic explanation. His conception of it gave a technical meaning to the description of modern materialism as "mechanical," and which went so far as to wholly transform the definition of it in the minds of many philosophers who forget its prior historical lineage in the notion of atomic combinations. Descartes made a technical denial of the older atomic doctrine but set up a conception which was in effect a reinstatement of it with the notion of a vacuum omitted. He accepted the doctrine that matter was divisible into primary unities, but they were in contact, so that motion could be transferred from one to the other and *actio in distans* was denied. Accepting either tacitly or by implication the traditional conception of inertia, as implying that all motion must have a primitive initium, he derived the primary motion of the physical universe from an act of God, but after this he accounted for the occurrence of all material "phenomena" by the *transmission of this motion from one body to another*, and chose mechanical impact and transfer of energy as his analogy for the whole process.

I shall not trace the development of this idea through Descartes' successors in any historical way, as various modifications of details occurred in men like Gassendi, Hobbes and Huyghens, but shall only call attention to the simple mode by which the conception of

Descartes can be illustrated as well as the process which he was considering. For example, a steam engine well illustrates this transmission of motion from one point to another in the impulsion which its action gives to machinery. Whatever origin we give to the motion which the steam engine exhibits the motion which it causes in what it impels is a transmission or translation from one point to another through bodies or matter in contact. Perhaps a simpler illustration would be a series of billiard balls set in motion by the impact of a cue. The motion is conceivably transferred from the cue to the first ball and from this to the second ball, and so on. All complexity of action in a system of connected machines, consisting of levers, cranks, pulleys, etc., only exhibits the variations of direction in this transmitted motion. This conception of "mechanical" action as the transmission of energy became the accepted one in all fields of physics after Descartes, and when it was discovered that the various "forces," or energy defined as the capacity to do work, which was measured in terms of motion and mass, were so correlated that none seemed lost and none gained in the process of translation, when friction was allowed for, as even the simple experiment with elastic balls will show, the fact was generalized to express the *persistence of "force" or motion*, and this only extended to motion what was already admitted of matter, its indestructibility. Experiments with the various "mechanical forces," such as heat, electricity, steam, water power, and expansible vapors, with the assumed "convertibility" and "inconvertibility" of some of them, resulted in the formulation of the doctrine of the "conservation of energy," which meant that in all its changes and modifications the quantity of "force" or motion represented by the total effects was neither increased nor decreased. As "force" or "energy" was expressed in MV^2 it involved the idea of motion, and as this MV^2 never exhibited itself sensibly except in terms of motion, this reality became the fact conserved. But in spite of the fact that the doctrine of the conservation of energy was defined as indicating the quantitative identity of motion or "force" in all its modifications various circumstances availed to create the implication of qualitative identity at the same time. This means that the antecedent and consequent conditions of motion or "force" in the process of transmission or change were the same in kind, though the proper intent of the doctrine was or must be to speak of quantitative identity in the various states involved. The inevitable tendency to this conception of the case is found in speaking at all of their identity in any sense of the term. Besides in the usual measurements of theoreti-

cal and practical life we cannot assume or assert any quantitative identity without implying the qualitative identity in some respect at least. The notion of equality inevitably insinuates itself into comparisons of this kind, and equality must imply qualitative resemblance enough to make the comparison of this kind. All mensuration implies qualitative identity in some form. Probably the concrete facts which led to this conception of the qualitative identity of the terms in the series of "mechanical" "phenomena" were ideas most naturally formed of the process of transmission of energy or motion in the simplest cases, chosen for illustration, and of which all complicated machinery was but a complex illustration. In the translation of motion from one ball to another the theoretical rule is, elasticity being sufficient, that the antecedent ball stops and the consequent ball receives and continues the motion so received, repeating the process, *ceteris paribus*, of the first ball, if it comes into contact with a third while it is itself in motion. Here, as the motion of each ball is so identical, or apparently identical in kind with that of the preceding, incidental effects like sound, etc., being ignored, as in a complete theory they should not be, we conceive the effect as identical in kind with the cause, as qualitatively identical whatever we think of their quantitative relations. When we have generalized the conception of conservation and represent these simple cases of its exhibition as qualitatively the same as the more complex illustrations of the "phenomenon," we very naturally transfer the conception of the simple case, presumably representing the qualitative identity of cause and effect, to the more complex instances of the transmission of "force," and come thus to conceive the conservation of energy as necessarily implying the qualitative as well as the quantitative identity of the cause and the effect.

Whether this conception of the doctrine of the conservation of energy is the correct one or not, or the one always held by scientific men, is not the question to be decided, but only the fact that many men have actually discussed the doctrine with the implications indicated, even when they knew in their clearer moments that the true conception of it was very different from that which the language most naturally implied. Hence I am concerned with the effect of the assumption, whether true or false, of qualitative identity between cause and effect upon the conception of the materialistic theory, and with the various influences that tended to make the mind conceive and represent the two terms as identical, whatever meaning a more critical and cautious statement of the doctrine might give it. I have always felt that Grove's formulation of the doctrine as the *correlation* of the physical forces

was by far the better expression for the doctrine, as being less calculated to suggest equivocation. It satisfied all the facts of harmonious relation and quantitative considerations rightly considered, and leaves open the question of universal qualitative identity in the transformations of energy and may not imply that "transmission" is the only way to conceive the process of change in "mechanical" causation. But "conservation" is a term that in its very import implies some sort of continuity and identity, so that cases in which this identity may be apparent become the norm by which cases are interpreted, which, in fact, do not show this identity of kind, but which at the same time have the appropriate "correlation" of cause and effect to suggest that energy is neither increased nor decreased in the process of change, though the change may not involve "transmission" or translation at all. But whatever may be the best term to describe the doctrine accepted as the "conservation of energy," it is certain that this formulation of it tends to encourage the conception of identity between cause and effect. The simplest illustration of it is evidence of this. In the case of the billiard balls the cessation of motion in the first, as the theory must represent it, and the appearance of this motion in the others, representing perfect continuity in time and mechanical impact, is explained by the mere taking up by one ball of the antecedent motion imparted to it by the one that has lost its motion. If the uniform effect had been the continuance of the motion in the antecedent and the rise of motion in the consequent instances, it is possible that the conception of the problem of mechanics would have been less convincing of the identity between the two terms. But the cessation of the motion in the antecedent and its genesis in the consequent suggests that the only way to escape an anomalous situation, and measurement confirms it, is to conceive the motion as simply transferred and identical in kind with that which was initial in the case. This is apparent in the simple illustration of the balls. The identity of the effect in kind with the cause or antecedent motion and the fact that the two stages of it are measurably the same in quantity, one ceasing and the other beginning, carries with it a conception of qualitative identity throughout which cannot easily be resisted. In fact the difference between the various moments of the transmission are less apparent, if observable at all, than the resemblances, and we neglect them entirely in our appreciation of the identities, and as the principle of identity is the one by which we render the universe an intelligible cosmos for our minds, we most naturally put the ictus of thought and explanation on these identities and our estimate and conception of the cause and effect in

such cases as the simplest instances of the transmission of motion take on the coloring of the chief factor in them, namely, the identity in kind. Now when we experiment with the other "mechanical forces," such as heat and electricity, we find a definite correlation between them which leads to the conception that they are related in the same way. Thus they show unmistakable evidence of some sort of quantitative relations, involving the alternative and convertible disappearance and reappearance of antecedent or consequent, as the "conversion of heat into electricity and again of electricity back into heat," and consequently appear to indicate their identity in view of the fact that energy is neither created nor destroyed by the process of change. The effect of this is to place the two sets of "phenomena" in the same class and to describe them by the same law which is said to be the "conservation of energy" and to represent them as involving their "mechanical equivalence," their "convertibility," and in some cases their "interconvertibility." In this language cause and effect are described as equal to each other and this implies their qualitative identity, even though the facts and our intentions represent them as only quantitatively related. The whole doctrine, in spite of precautions and occasional limitations suggested by various controversies, takes the form of a qualitative identity between the several stages of "phenomenal" transformations owing to the original simple conception which determined the generalization.

The main direct consequence of this result is in the application of the same principle to motion that had been applied by the earlier materialism to matter, namely, its *persistence in change*. The indestructibility of matter had been experimentally proved, justifying the assumption in antiquity of identity between the sensible and supersensible worlds in respect to substance, and now experiment has equally appeared to establish that identity of motion in all its transformations or changes. In other words, the law of identity now applies to both matter and motion. Consequently, considering the fact regressively in time, as in the case of matter, it implies that motion no more had an origin in time than matter, and the Aristotelian and Christian doctrines, implying an original initium for all motion, seems to have met with a refutation. Hence with the persistence of both matter and motion as an established fact, as a truth that is no longer a mere assumption or conjecture which obtained its plausibility or acceptance on the ground that it could not be denied, we not only have the old materialistic preconceptions confirmed and the anti-materialistic position disabled, but there is also nothing left for explanation except

changes in the direction of motion and the qualitative modifications of substance that are not reducible to motion at all. The latter of these are presumably the consequence of internal "forces," and the former of conflicting motions which might be as original as the qualitative differences of the atoms. There can certainly be no more difficulty in assuming an eternal variation in kind of motion than the variation in kind of the atoms, especially as we have not the reason to suppose any such *perpetuum mobile* to cause only the downward motion of the atoms with the necessity of endowing them with free will to produce lateral motion. With such conceptions, supported by actual experiment, the materialistic theory becomes apparently irrefragible. In doing so also, it has made so extensive a use of the principle of identity, or material causation, as to appear not to need any other for the explanation of "phenomena" of any kind, and wherever it interprets qualitative differences as modes of motion, its principle of identity apparently suffices to cover the whole field and it remains master.

The indirect consequence of the doctrine of the conservation of energy, or material causation, is its application to the "phenomena" of consciousness. The readiness with which this application could be made and was made was determined by the universality of the belief that there was a causal nexus between mental and physical "phenomena." That there had to be such a nexus assumed was an unquestionable necessity in the theistic theory of creation and the primary instigation of motion. Spiritualism, in its acceptance of the theistic origin of things, obtained its excuse for existence as a theory from the assumption of a causal influence both in the creation of matter and in the collocation of it by means of the initiation of motion, so that in one direction at least the possible influence of mind on matter had to be a necessary postulate. On the other hand, the theory of "knowledge" had assumed or asserted the complementary nexus between mind and matter as necessary to the production of consciousness; that is, the causal action of matter upon the mind in instigating the occurrence of mental states. Moreover, common observation also presented the alternative coexistence and sequence of mental and physical "phenomena," physical events now being the antecedent of the mental, as in sensation and "knowledge" of the external world, and again, mental "phenomena" being the antecedent of the physical, as in conscious volition initiating physical events. In other words, mental and physical "phenomena" represent a concurrent and recurrent series of events with a relative import for cause and effect exactly like that evidentially in the physical series alone, where, *ceteris paribus*, an ante-

cedent is a cause in relation to the consequent, and may be an effect in relation to a prior antecedent, or the effect a cause in relation to a posterior consequent. This is only to say that the relation between the mental and physical is most naturally interpreted causally, just as the relation between the members of the physical series is interpreted. Now as this causal relation between the mental and physical has been universally accepted, that is, by both schools of thought, with perhaps only individual exceptions, and as the causal nexus between the terms of the physical series has been presumably proved to be "material," that is, representing the principle of identity, it was only natural and scientific to suppose that the same interpretation should be put upon the nexus between the mental and physical; that the mental is only a conversion or transmission of the physical into it and so identical with it in kind. It matters not whether such a result has been proved or not. All that I am asserting is that, with the causal nexus between mental and physical generally accepted, and the acceptance of the conservation of energy as the norm of physical causation involving the identity of antecedent and consequent in the physical series, the proper procedure is to extend this latter conclusion, at least as a most probable hypothesis, to cover the relation between the mental and physical. The necessary unity of explanation requires this, if the materialistic theory is supposed to explain anything at all, and finds no problems in the material world not solved by this application of material causation. In this application of the principle of identity to the relation between the mental and physical, materialism thus obtains a perfect unity throughout the "phenomena" of existence, and consciousness is "reduced" to a "mode of motion," which had to be the original hypothesis of materialism, but which now seems to be verified by the doctrine of the conservation of energy and the accepted causal relation between the mental and the physical. Materialism thus becomes the one simple theory which is apparently capable of explaining all "phenomena" whatever, and the principle of material causation or identity the agency to interpret the nature of all events whatsoever.

This outcome of the materialistic doctrine since Descartes has modified the conception of materialism which once prevailed. The idea of atomic composition still remains as a fundamental tenet in it, but the "mechanical" theory of nature, as based upon the conservation of energy and the conceptions that have determined our way of representing it, has resulted in the interpretation of materialism as conceptually convertible with the identity of mental and physical "phenomena," in addition to the idea of atomic composition. But the latter

conception has retreated into the background as a means for explaining mental events, since the assumption of an absolutely qualitative difference between mental and physical, which was supposably explicable as a resultant of composition, an internal "force" analogous to chemical affinity, is necessarily abandoned by the new materialism and consciousness becomes a moment in the transmission of motion. The old idea that the nexus between the mental and physical was only that of *efficient* causation was exchanged for that of *material* causation, and the "mechanical" philosophy, from being defined and conceived in terms of a "mechanical" prius, or efficient cause, as "mechanical" causation originally meant, became convertible with the idea of equivalence between cause and effect and hence implied identity. This idea of identity is clearly indicated in such phrases as "the mechanical equivalent of heat," etc., even though mental reservations are made for a different interpretation of the facts and for a limitation of the doctrine of conservation of energy to quantitative and excluding qualitative problems. But its conception of material causation in its assertion or assumption of the identity of matter and motion in all their real or apparent changes and transformations carried with it the implication that materialism was to be defined by this conception, and the older doctrine based upon the admission of priority for efficient causality in the problem was exchanged for the priority of material causality as the interpreting instrument in the explanation of "phenomena." The consequence was that the exposition and criticism of modern materialism has primarily to consider this reduction of the theory to the application of the principle of material causation to all events.

The modern attack upon this materialism, or "mechanical" philosophy as it is called, is based upon the assumption that the doctrine is definable, as indicated, by the affirmation of the identity or convertibility of mental and physical "phenomena." The doctrine that has been brought forward to controvert it has been called Parallelism. It originates in the conception with which philosophy has been inoculated by the dualism of Descartes in connection with the monism of Leibnitz, and which does not disappear even after men have adopted monism! Descartes insisted upon the radical difference between mental and physical "phenomena" and the impossibility of "mechanical" or material causation between them, although he admitted a relation of efficient causation. The idea survived in the "phenomenal" dualism or difference between thought and extension in the philosophy of Spinoza in which consciousness and motion or all "phenomena"

in extension remained inconvertible with each other, though they were attributes of the same substance, a position at least very near the doctrine of materialism, though not assuming an atomic basis. In fact Spinoza conceived substance as material in all the essential implications involved in the interpretation of "nature" and accepted the materialistic construction of "phenomena" in a monistic form with a provision for a spiritualistic aspect in one of its modes parallel with extension, making his system as consistent with one system as the other, a "double-faced unity," and preparing the way for the conception of the Leibnitzian monads which united in themselves in various degrees the attributes of matter and mind. But Leibnitz worked out the conception of "parallelism" into its most consistent form in the attempt to displace the "mechanical" interpretation of mental "phenomena." Accepting the dictum of Descartes at this point, namely, that a material causal nexus between mind and matter did not exist, he shut his monads up from all external influence and from all influence upon the external world in terms of the "mechanical" transmission of energy or motion from one monad to the other. The unity, coincidence, and actual relation or connective appearance of interaction was explained by his doctrine of "occasional" causes, or preëstablished harmony, an expression which was perhaps an unfortunate one for the correct understanding of his real conception and intentions. But apart from either the truth or falsity of his conception, it asserted what has been called a "parallelism" between internal and external action of all kinds. This "parallelism" meant that there was no real transmission or translation of motion from one thing to another and that when two coexistent or sequent events took place under the appearance of a material causal nexus all that could be said of them was that they had a "parallel" or coincidental origin in two different centers of reference. This was the most radical position possible against the existing conception of materialism. It was as total a denial of material causation between different realities as materialism was an affirmation of it. The materialist explained all "phenomena" of causation by "material" causation alone. Leibnitz denied *in toto* the existence of any such causation, and whether true or false in his view threw down the gauntlet to materialism in the boldest way and challenged the existence of its conceptions even in the material world. Applied to the relation between the mental and physical it meant that they were not convertible; that there was no *influxus physicus* into the mental and no *influxus mentalis* into the physical world. Now as I have said, Leibnitz intended this position to be a refutation of the prevailing

materialism or "mechanical" philosophy of his time with which he was confronted. But neither he nor Descartes knew anything of the experimental facts which, since their time, have proved the quantitative relations and presumably the qualitative identity between cause and effect in the physical world, though it is possible that Leibnitz would adapt his views to present facts. They were contending on *a priori* grounds against an *a priori* assumption and were perhaps equally justified with their opponents in the assumption of intransmissibility of motion between mind and matter. But, however this may be, the proof that the quantity of energy remains the same in all physical changes and modifications of motion, and the assumption or proof that its quality is also the same, have really or apparently confirmed the materialistic theory within the domain of physics at large and leaves to the parallelist and anti-materialist the necessity of denying its application to the relation between matter and mind, whatever may be true of matter alone, thus resuming the position of Descartes in the case. But unless the opponent of materialism wishes to insist upon Cartesian dualism, his monism and the acceptance of a causal nexus between mental and physical "phenomena," whether progressively or retrogressively conceived, will suggest the possibility that the law of "mechanical" causality will apply to the relation between matter and mind quite as well as between the separate terms in either of the series alone. As the "phenomenal" order of events in the physical series and in the mental and physical series together is the same, the evidential situation for a causal nexus of some kind is as apparent in one case as the other and hence the opponent of materialism must either deny a causal relation in both and resort to a doctrine of preëstablished harmony, which philosophy has agreed to reject, or accept the plausibility of the extension of the material causality to the relation between the mental and physical after it is admitted in the physical series, unless he is prepared for an analysis of the causality problem which will meet the conditions of the case. This last course would require a distinction of at least two kinds of causes in the general problem of explanation.

The course suggested is probably the real meaning and intention of the parallelist when denying the causal relation between mental and physical "phenomena," though he too frequently discusses the problem in a way to indicate that he has efficient causality in mind as well as material when denying the relation which has as much empirical evidence in the mental and physical series together as in the physical alone, where the causal nexus is admitted by the parallelist in the ma-

terial sense, as perhaps Leibnitz would not have done. If then, instead of carrying on the controversy in terms that apparently deny *all* "causal" relation whatever between mental and physical events, we insist upon the distinction between *efficient* and *material* causes, between what may be called "occasional" and constitutive causes, we may have a legitimate resource, speculatively at least, for combatting the much dreaded materialism. This distinction would enable us to deny the application of the principle of identity and material causation to the relation between the two types of "phenomena," as the parallelist really does, while we affirm a "causal" relation of genesis or instigation, which will satisfy the natural conclusion drawn from their coexistence and sequence, as this relation is the evidential characteristic in the physical series of a "causal" nexus of some kind. The distinction can accept the natural judgment of a qualitative difference between mental and physical, and even between the various terms of a physical series, while it maintains that the problem and conclusion represented in the conservation of energy is merely quantitative and not qualitative, so that material causality is excluded from the nexus between the mental and the physical while the nexus of efficient causation may remain intact. It would then be in a position to impose a dilemma upon materialism. Dropping for the present the question whether the conservation of energy is merely quantitative and not qualitative, the point to be noted is that the distinction between the problems of efficient and those of material causes is adapted to the denial of a material identity of mental and physical while it concedes an efficient causal nexus between them as an "occasioning" influence in the genesis of one or the other "phenomenon," as the case may require. This will be equal to the demand that materialism either change its definition and conception of its problem as essentially occupied with the principle of identity and material causation between "phenomena," especially in the connection between matter and mind, or obtain its evidence for this material nexus in mental "phenomena" and physical together in some other fact than the relation of coexistence or sequence, since this can be presumably explained as an occurrence by efficient or "occasional" causes without admitting a material nexus at all. The advantage which the materialist has had in the argument arises from the general admission of a causal nexus between mental and physical "phenomena" without any definition of its limitations and meaning and the fact that parallelism has had no special recognition until philosophy was confronted with the materialistic application of the principle of identity or material causes in the relations between mind and matter. His contention was good

for *ad hominem* purposes as long as the distinction between efficient and material causes was not known or explicitly urged as an argument against him, so that he could consistently and effectively maintain that the explanation was valid for the connection between mind and matter wherever an undistinguished causality was admitted in the case. But once insist upon the distinction mentioned and the *ad hominem* argument would not be valid, and *ad rem* facts would have to be produced to show that material causality applied to the case as well as efficient or "occasional" causes. The anti-materialist would be invulnerable with his distinction until the distinction itself was either disproved in general or shown to be indifferent to the materialist's problem.

But the strange part of the controversy at this point is that the procedure of the parallelist and materialist alike was an abandonment of the position which each should have taken. If the materialist had accepted the conclusion of the spiritualist, as he should have done, and if the spiritualist had accepted the materialist's theory of conservation, both would have come to an agreement and left nothing but a difference of terms to distinguish between their views. The spiritualist ought to have seen that his argument against materialism, as a denial of the persistence of consciousness, depended for its effectiveness upon the acceptance of the materialist's doctrine of the conservation of energy, and that the materialist was wholly inconsequent when he insisted upon the integrity of his traditional theory after assuming the identity of the mental and physical, or a material causal nexus between them. If the physical is convertible with the mental, as this material causal nexus assumes, then motion and consciousness are identical, and the persistence of the one implies the equal persistence of the other. The eternity of matter and motion must imply the eternity of consciousness because there can be no distinction, by hypothesis, between it and motion. We cannot reduce them to identity without admitting the force of what is meant by "consciousness" as well as "motion." What the materialist thought he could do with impunity was to identify the two things and deny the previous implications of "consciousness" altogether, or affirm their identity by assuming the falsity of their difference and yet retain the implications of universalizing "motion" without recognizing "consciousness" at all! But he cannot do this on any theory of material causation alone. He must accept "consciousness" in the system with all that it means and consider that "motion" abstracted from "consciousness" no more exists independently than "consciousness" without "motion." The materialist ought to have seen that his application of the conservation had in-

volved a total abandonment of the position for which his theory had traditionally stood. The anti-materialist should have taken advantage of the *ad hominem* argument, as just shown, and as absolutely invulnerable without a reconstruction of the problem on his own terms, and not have placed himself on the defensive by advocating the paradoxical theory of parallelism, which can be accepted apparently as rational only on the condition that it is convertible with the distinction between efficient and material causes. By insisting upon the logical consequences of the materialist's own theory of causation the spiritualist could have forced the materialist either to accept the permanence and non-phenomenal nature of consciousness, that is, the immortality of the "soul" on a physical basis, which it had been the purpose of that doctrine all along to deny, or to modify the doctrine of the conservation of energy and to concede that there are qualitative problems of causality which quantitative methods do not decide; that qualitative changes are not accounted for by material causation with its regulating principle of identity, and that "mechanical" principles, assuming this identity, cannot explain or make intelligible more than one half the universe of science and philosophy. The materialist is clearly in a fatal dilemma here. He must either reconstruct his method or concede the limitations of the conservation of energy, if he is to insist any longer on the denial of immortality, and on any terms he is in the hands of the spiritualist who accepts the conservation of energy, and such mercy as he may display will depend upon the assurance that he can hold the materialist to the conclusions which he has drawn from his observations and experiments without retracing his steps to the distinction between efficient and material causes.

It is evident, therefore, that the materialist had departed from the original conception of his theory in discrediting the permanence of consciousness after identifying it with motion and then declaring this to have been proved to be eternal by experimentation, and retained nothing but the word "materialism" for his position, relying upon association and the ignorance of the student to accept the inconsequent conclusion drawn from it. On the other hand, the spiritualist or anti-materialist took up the old assumptions of the materialist as to the distinction between efficient and material causes and tried to force a conclusion the opposite of what actually may follow from it. Instead of imposing the above mentioned dilemma upon his opponent he accepted the older position of materialism with a denial of its necessary consequence! He chose for his weapon of offense and refutation the very fact that made possible the purely "phenomenal" nature of con-

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sciousness and took to fighting against the doctrine which proved his own contentions! This is truly a humorous situation. Both parties performed the impossible feat for which Hegel has been so roundly abused, namely, that of actually holding that the truth is the unity and identity of contradictories, for while the materialist was bent on denying the permanence of consciousness his doctrine affirmed it, and the spiritualist, while he was bent on denying that consciousness is a function of the organism, he placed his argument on a position which affirmed it, or made that affirmation possible. Each party, in his haste and zeal to refute the other, assuming that he must not admit the major premises of his opponent, adopted conceptions which should have been the premises and had been the original premises of his antagonist and then argued against doctrines which he should have accepted on his own proper premises! Mutual absorption is not always the result of philosophic controversies, but this one reminds us of the Kilkenny cats.

There is another inconsequence which the materialist has been guilty of and which must be noticed. I have called attention to his original extension of the term "matter" to cover the supersensible as well as the sensible world of reality and shown that it might have been questioned until the scientific proof of the indestructibility of "matter" justified this extension. But this was in dealing with the problem involved in distinctions between sensible and supersensible facts. The inconsequence to be noticed cannot plead in its defence any such distinction. It concerns the extension of the term "matter" in the *same* world, whether sensible or supersensible it matters not, and where the qualities are not present to give it its proper connotation. This extension is shown in the modern speculations about the nature of "matter." Various facts and intellectual tendencies, one of the latter being perhaps the same instinct that prompted theistic speculation to assume the created nature of "matter," namely to ask the cause of every possible reality, have induced scientific men to explain how matter may have come into existence. Granting the assumption that it was or might be a dependent reality, instead of supposing it the creation of intelligence, the scientific man, either from motives of evolution or from the desire to obtain some ultimate monistic reality, has explained "matter" to have been formed from "vortex atoms of ether." Now the ether had been defined by qualities which are the negation of everything by which "matter" is known to be "matter," and this reduction of material substance to a modification of ether which is not "matter" at all, is a virtual admission that the ultimate reality is immaterial. But

if you ask these same scientists what "ether" is they will tell you that it is a "form of matter"! This is a contradiction in terms. We cannot reduce matter to a creation or evolution from the immaterial and yet define the ultimate reality as "material" without forfeiting the right to distinguish against the anti-materialistic point of view, as the generalization of the term "matter" in this extension of it covers both the positive and negative qualities of the old conception! Another union of contradictories! Reasoning is impossible on any side of any question if this procedure is permitted to go on with impunity. I do not deny that "matter" may be formed from "vortex atoms of ether," but this cannot be true at the same time that "ether" is to be regarded as a "form of matter." One or the other alternative will have to be sacrificed, if the materialistic hypothesis is to have any logical fulcrum against spiritualism. If the distinction made in the case and the extension of the meaning of the term "matter" involved that between a sensible and supersensible world this contention just put forward would not hold true. The alternatives would not be so clear. But the extension covers facts of distinction and opposition in the same world, the supersensible and all rational procedure requires some respect for distinctions of fact when giving names to the results. If we insist upon generalizing a concept to cover such distinct objects as the present qualities of matter and the negation of them we must not carry with it either the conception or implications of the older use of the term. This duty, however, is not so often observed as it should be. The interests of controversy induce us to evade it.

The defence of the materialist against both of these inconsequences above should have been the consistent limitation of the term "matter," on the one hand, and the frank abandonment of material causation as the only method of explaining the origin and nature of "phenomena," and to have cultivated the advantage which he possessed in the hypothesis of internal causes or "forces" to account for qualitative changes and differences. The fundamental error of the materialist was his abandonment and evasion of the *category of difference*, if I may adopt a remark of Sterling, and in using only the category of identity, where the other is quite as evident a fact in "phenomena" as identity and already admitted in the non-phenomenal world of atoms which were not all qualitatively alike. If the materialist would only remain by the distinction between efficient and material causation he could treat all differences, variations from the "uniformity of nature," or qualitative changes attached to quantitative identity, as "epiphenomena" or incidental effects of causes that guarantee no necessary permanence for

their effects, which on that account may be transient and "phenomenal." That is to say, whatever account we may or may not be able to give of "efficient" causes, the materialist should have recognized from the very conception of differences between causes and effects where qualitative changes are facts that his assumption of internal causation had provided for an explanation of certain "phenomena" incompatible with their causation by the transmission of motion from an external source, and hence a modal modification not traceable to material causality. In this way it might well admit the qualitative difference between consciousness and external motion, refusing to apply "mechanical" causality as implying equivalence to them, so as to make consciousness an incidental effect of the process of efficient causation, either of external motion modified by the subject to which it is transmitted, or of the internal nature and action of the subject to which the motion is transmitted. There could then be no answer to its position but the production of facts which would prove that, whatever relation consciousness as an event might have to the efficient action of external stimulus, it was and is not a function of the material organism with which it is associated in its known manifestations usually, that is, not a merely "phenomenal" incident of composition, but a mode of action which has a persistence equal to the integrity of the subject of which it is a function independent of the organism and not dissolvable with it. The evidence which will satisfy any such terms must be of the kind which will prove the identity of any given consciousness after the dissolution of the organism. Unless this is undertaken materialism will have the advantage of the distinction between efficient and material causes, assuming that it abandons its conception of "mechanical" causes, and also of the uniform association of consciousness with the material organism and no accepted evidence of its isolation from it.

Summary.

Greek genius showed itself in its art, and this was imitated in Roman tastes and manners. This reflected a sensuous view of life and it infected its whole religious cult. Philosophy was more free from the infection, but did not wholly escape it, and in the Epicurean system returned to the natural taste and conceptions of the race. In its revolt against materialism, Christianity carried its spiritual tendencies into the entire field of human interests, and so embodied its conceptions in a fixed antipathy to philosophic materialism, art and idolatry. Nothing was more uncompromising than its opposition to the last. Its view of spiritual life was wholly internal and it turned away from sense as from evil. It was many centuries before the reaction came, and this

was announced by the revival of pictorial art, which did not become dominant at once.

1. The first indication of a materialistic revival was the rise and prominence of painting in the twelfth and thirteenth centuries. It was religious in form, but represented a sensuous instead of a spiritual conception of religious life. The inner and reflective life had lost its force and beauty, and the religious consciousness sought satisfaction in reviving the contemplation of sensuous embodiment for its ideals. The church had for centuries refused to recognize this interest and now it sprang again into existence and initiated a taste for the real as distinct from the ideal world.

2. The next step in the same direction was the Renaissance or the revival of ancient literature and an enthusiasm for a natural life. This was the feature of the fourteenth and fifteenth centuries. Greek and Roman ideals began to supplant the Christian and the mind had its momentum toward material life and civilization increased.

3. The Protestant Reformation extended the same impulse to religious authority and originated freedom of conscience and belief. This occupied the fifteenth and sixteenth centuries,and eviscerated the power of the church to interfere successfully with the progress of science which had begun to show its conquests over traditional views of nature and terminated in the "higher criticism" which was the logical consequence of raising the question of authority in human belief.

4. In the whole history of Christianity there was a field of reality consigned to "natural" agencies and this meant originally *physical* forces. Providential and Divine agency applied wherever the physical did not seem to explain things. This field of physical powers was a comparatively limited one, and as long as the belief in miracles endured there was no difficulty in finding a cause for any apparent exception to the domain of "natural" law. General cosmic action was referred to providential agency either directly or indirectly. Hence with the predominance of religious conceptions and an insistence on a religious view of the cosmos the Ptolemaic system became a dogma whose integrity could not be disturbed without affecting religion and without creating a presumption in favor of the opposing view. Copernican astronomy set aside the Ptolemaic and encouraged confidence in the scientific way of looking at things, though it did not alter the field of supposed direct Divine action in the regulation of the cosmos. But Newtonian gravitation followed with its conception of "natural" attraction and still more limited the field of miraculous interference. Then came Darwinism and extended "natural" action to the formation

of species, and did for time what Newtonian gravitation did for space, namely, applied "natural" agencies to the field of organic creation as gravitation explains the collocations of matter. The last fortress of creationism had been the beginning of things in time when some outside agency was required to initiate them. But gravitation and evolution transferred this initium into so remote a period that anything could be said with impunity about it. The increase of material agencies in the explanation of phenomena left no assured field for the "supernatural," and the materialistic theory obtained the victory.

5. The first definite admission of the sufficiency of a mechanical theory of "nature" was that of Descartes. He allowed "natural" causes to prevail in the field of matter, though he admitted the Divine as an initiating agency. But mechanical causes were deemed adequate to the explanation of all material phenomena. Spinoza followed and reduced mental phenomena, which Descartes had excepted from material influences, to functional events in a material substance or Absolute. Dalton came with a restatement of the atomic theory and used a system of internal forces to explain the combinations of matter and thus applied materialism to all compounds. Thus it seemed that both the monistic and the pluralistic view of "nature" were consistent with materialism.

6. Christianity had organized a theory of creation as against the Greek doctrine of evolution and so placed spirit at the basis of things, matter being phenomenal and evanescent. But the discovery of the indestructibility of matter reversed this order and tended to make mental phenomena incidental and transient. Philosophy had been so saturated with the conviction that there was but one ultimate basis for existence that the eternal nature of matter simply dispossessed the priority of mind unless it could be assigned a function in the movement of matter, and there this idea prevailed to account for the changes of the cosmic order until the conservation of energy seemed to reinstate the same eternity for motion that indestructibility applied to matter. The materialistic theory thus seemed to prevail over the whole kingdom of "nature." Mental phenomena became transient accidents of organization and disappeared as many other functions of matter with the dissolution of the compounds with which they were associated.

7. Physiology and pathology added their acquisitions to the same conclusion. In them the integrity of consciousness seemed wholly dependent upon the organism and its conditions, so that it appears to be a function of this organism and not of some other and associated reality such as a soul. There thus seemed no field for the independence of mind.

CHAPTER XI.

SPIRITUALISM.

It will be necessary here to examine somewhat closely the meaning of spiritualism, though it has been defined previously with a view to establishing its antithesis to materialism. This relation was considered briefly in the classification of the theories of knowledge and reality (p. 72), but it will require to be reconsidered here in order to make perfectly clear the complicated problem with which we have to deal in an exposition of it, and of the arguments by which it is supported. Materialism has always been a comparatively simple theory, in that it applied the same formula to cosmic and psychological "phenomena," explaining absolutely all events in the same general way, and constituting, in one sense at least, a system of monism, whether of the Spinozistic or the Lucretian type. But spiritualism has not always insisted upon describing and explaining cosmic "phenomena" by the same general principle. It has sometimes accepted a field for material "phenomena" distinct from the mental, as in Cartesian dualism and the various conceptions of "common sense." In this form it is a theory opposed only to what is here called psychological materialism, and might be conceived as consistent with pan-materialism. Only occasionally has it assumed the form of "pan-spiritualism," a claim often made for the system of Spinoza by those who feel that they cannot escape its meshes and who wish therefore to delude themselves and others with the illusion that idealism is a good substitute for religion. I have already indicated that this pan-spiritualism does not escape the necessity of considering the problem which has been so hotly discussed between psychological materialism and psychological spiritualism, namely, that regarding the value and persistence of consciousness, whose value depends upon its persistence. Consequently, as this problem would take the form of determining the relation between the different modes of a spiritual, absolute, and as materialism has usually taken the form of an atomic doctrine, it will be best to discuss the problem in the form in which its historical setting has been determined. But even in its conception of an antithesis to psychological materialism it has indirectly complicated itself with cosmic problems without becoming a monistic theory itself. On this account I have divided the doctrine into three types, the *theological*, the *philosophical* and the

scientific, according to the method adopted for its solution, and according as it is or is not complicated with speculations that are extraneous, or only indirectly connected with its main object, the permanence of consciousness. Theological spiritualism bases its support for the persistence and value of consciousness upon a divine revelation; philosophic spiritualism upon rationalistic interpretations of the nature of things; and scientific spiritualism upon inductive and experimental evidence. These several points of view often interpenetrate, so that the exposition of the doctrine of spiritualism generally will bring us into contact with all of them in the course of its history, and I shall leave to the reader the detection of the specific type that is under discussion at any time, the main point to be remembered being that they are all designed to refute materialism in one or all its forms.

There is another complication in which spiritualism and its controversy with materialism is involved. Spiritualism has a *destructive* and a *constructive* function to perform. The first necessity of its existence is the denial and refutation of materialism, a negative or sceptical function which does not commit it to any constructive work in the argument. The result of stopping with the refutation of materialism would only be that this theory would not explain the nature and meaning of consciousness, but it would not necessarily determine any reality that did explain the "phenomena" of mind. Immaterialism, so to speak, would be the result, with liberty to give it any interpretation that other interests might determine. The constructive effort might take the direction of either pan-spiritualism or of psychological spiritualism, whether of the theological, the philosophical, or the scientific type. But it is rare that it denies the existence of matter unequivocally. It may, and often enough does, deny the "independent" existence of "matter," that is, a self-existent material reality capable of explaining "phenomena" of any kind or in any way, but when it comes to characterize "reality" constructively which will explain, the theory which takes this course is not always zealous to call this "reality" God or to imply that it is consciousness of any intelligible sort. It is idealism in the garb of spiritualism, while those who are willing to describe the "reality," which in some way "creates" what ordinarily passes for "matter" in the mind of the idealist, as God, adopt the theological type of spiritualism. But as the majority of men admit the existence of "matter" as something capable of producing effects, whether directly or indirectly, and whether it is conceived as a self-existent or an independent reality, the usual antithesis implied between materialism and spiritualism is that in which spiritualism

loes not deny the existence of matter in some sense of the term, but denies the *adequacy* of matter to explain all the "phenomena" of the cosmos, and especially the "phenomena" of consciousness. The materialistic theory is not primarily occupied with proving the existence of matter but with its explanatory power. It simply takes the existence of matter for granted and undertakes to explain "phenomena" by the use of its functions. Of course it would be a fine controversial advantage to deny the materialist's assumption of the existence of matter as it would throw upon him the burden of proving what he assumes as evident. But when we recognize that the anti-materialist who appears to be denying so valiantly the very existence of matter is not denying either the facts which the materialist has in his possession or the relations between "phenomena" which are equally evident facts, we find that the denial is a mere subterfuge to avoid using the word "materialism" where it would be extremely inconvenient to do so. But, as I have previously remarked, the question is not whether we shall use the terms "matter" or "spirit," but whether the relation between consciousness and other events in respect of connection or causality and permanence is or is not what the "materialist" claims it is, as this problem would only involve a slight change of terms, whether we assume the monistic or the pluralistic point of view. Hence the primary question is not the existence of anything called "matter," but the adequacy of the explanation which embodies itself in the term materialism, whether considered as a "phenomenal" or a "noumenal" theory, that is to say, whether it deals with mere coexistences and sequence of events or involves the assumption of real substances or atoms, monistic or pluralistic.

The consequence of these facts is that I shall define spiritualism as the theory which denies that consciousness is a function of organization in matter, but affirms that it is a function of some other reality. This general point of view has been sufficiently indicated before and is only renewed here to have it present in the recognition of the circumstance that the arguments in behalf of the doctrine are partly negative of materialism and partly positive in support of spiritualism. Some avail only to create difficulties in the materialistic view and some avail to suggest or demand, in the name of the principle of causality which materialism respects, a source for mental phenomena other than anything called matter, at least as long as that conception is limited to the accepted definition of it. I shall not classify the negative and positive arguments, but discuss the problem in its historical development and changes with the arguments for and against and leave the student to

determine when I am dealing with destructive and when with constructive considerations. The negative arguments can not prove spiritualism, but, if valid at all, only that the materialistic theory is insufficient to account for all the "phenomena" of observation. They can suggest or prove nothing more than the fact that an immaterial reality is necessary to meet the demands of explanation. But to prove spiritualism we should have to show that this immaterial reality is actually conscious, or that there is a type of immaterial reality that is conscious. Spiritualism must imply consciousness or it is not different from materialism in regard to the fundamental problem before us, namely, the value, meaning and persistence of consciousness. Here is where Berkeley made his failure. His abstraction from the sensible did not give him "spirit," not even an escape from the historical materialism whose conception of matter was a supersensible reality, but only a negation of *sensational* materialism, or the "common sense" conception of matter which assumes that sensation gives us the true "nature" of it. But even if the abstraction of the sensible did rightly displace materialism the existence of "spirit" did not follow as the reality which he placed at the basis of the cosmos, because his disjunction was not correct. Assuming the dualistic position of Descartes the argument was sound enough. But that reality must be limited to the two kinds, mind and matter, is a purely arbitrary assumption. There may be any number of realities neither mental nor material in the universe, so that the only conclusion which Berkeley could draw, even admitting that he had escaped the historical materialism, was that the ultimate basis of things was *immaterial*, and he should have presented special and additional evidence that this reality was conscious. The positive assertion of spiritualism, if it is to have any definite meaning, must imply the presence of consciousness. I do not say that it must be true. That is the question to be decided. But the only doctrine that can satisfy the demand for the persistence of consciousness or the survival of personal identity beyond the dissolution of the organism is that which defines "spirit" or "soul" as implying the fact. If we prefer, we may say that "spirit" should technically mean discarnate "soul" and "soul" incarnate "spirit," but in so far as the general theory of spiritualism is concerned either term will satisfy the definition. Unless idealism is synonymous with this conception, it can only mean immaterialism and remain agnostic or dogmatically opposed to survival after death. It is usually one or the other of these alternatives. Its opposition to materialism is only technical and conceives it as a sensational theory of things while it intends to be an intellectual

doctrine, as I have already shown above. The negative arguments for spiritualism, if valid, do not take us beyond the refutation of materialism, but do not establish positively the persistence of consciousness, though at least suggesting its possibility. Whether any such result be possible is not the problem that is before us, but only the conception of the theory that must be definitely and clearly opposed to materialism and satisfy the assertion that consciousness is not a function of the bodily organism.

The doctrine of spiritualism was not clearly defined until Christianity asserted it and worked out the theory with a philosophy. The anti-materialism of the Greeks was largely a denial of the sensationalism of the earlier period of reflection and an assertion of intellectualism, the distinction involving nothing more ethically and philosophically than the superior value of the intellectual life, the importance of recognizing the true, the beautiful, and the good, as they were embodied in nature, art and politics. This general characterization of Greek thought, however, may do an injustice to some of its representatives and to the actual beliefs of common people of whom we have heard little or nothing directly. Indicating, as I have done, that the main tendency of Greek speculation was a distinction between realities of the same kind and only between the sensible and supersensible forms of this reality which was monistically conceived, whether as in atomism or in the pantheistic view, the test whether spiritualism describes any conceptions philosophically entertained by that race must be found in their doctrine of immortality, because there is no way whatever to show, that consciousness is not a function of the organism but to maintain a theory which asserts its survival of bodily death. Now Plato maintained with much positiveness and argument that the soul was immortal, Aristotle admitted it for the "rational soul," and the Stoics held it in a rather vague form. With Socrates it was a pious belief not worked out philosophically. It is probable that some sort of personal survival was accepted by the common people at one time at least, for there is evidence from statements of Homer and later writers that Hades, the land of ghosts and shadows, was the place of discarnate souls whose life was a more or less conscious one, but less interesting and perfect than their incarnate existence. But the philosophers evaded responsibility for any such naïve views, and if their silence is evidence, they seem to have shied at ghost stories quite as the materialist of to-day does. Whatever conception they took of immortality was colored, as was quite natural and is perhaps always the case, by their general philosophy of nature, as they considered the "soul" such a

part of nature as to be involved in its process and tendencies. But their conception of it, be this what it may, must be the test of what is meant by the application of a spiritualistic doctrine to them and must also describe the nature and limits of the "idealism" that is attributed to them. We have seen enough in the discussion of materialism to learn that it is not the words used that determines the meaning of a theory but the synthetic implications of it in a wide range of facts and beliefs. This same consideration must be taken into account in discussing the relation of Greek thought to the problems which center about the nature and persistence of consciousness. The fact that they use the words "soul" and "immortality" does not imply of itself that they had conceptions of them the same as ours in any respect. This is even apparent in the "phenomenal" use of the term "soul" by the entire "empirical" school of phenomenalists in modern times, where it is conceived as the name for mental states, not for the subject of them or for a reality other than the brain, the last supposition not being entertained by them. The Greek philosophers did not make clear whether they viewed the "soul" as a substance or as an attribute, if I may use a modern distinction which enables us to distinguish between the subject and the "phenomena" of consciousness. This modern distinction enables us to assume a permanent fact different from its action, which may be variously interrupted or ephemeral. The substance remains permanent while its actions as functions may be "phenomenal," if in any way the resultant of its combination with another substance. The Greek, of course, had a conception of substance, but until materialism in the atomic form modified philosophic conceptions he conceived substance in action as a process of *metamorphosis*, after the analogy of evolutionary growth, and not of *combination*, after the analogy of the composition of forces, though in fact we find a very frequent compromise or union of both points of view during the process of development into clearer views which were realized in the materialistic theory and the reaction in Christian thought; clearer because the development brought out the distinctions necessary to show the nature of the implications involved. But in spite of the fact that the idea of "substance" was as clear to Greek thought as to any other, its failure to distinguish between kinds of substance as radically as later thought of every type, prevented it from distinguishing as clearly between its modal manifestations, and as the "soul" was conceived in the form of a refined matter its functions were inevitably implicated in preconceptions of the same nature, so that the permanence that the mental would get must be analogous to the permanence which was asserted or believed of the

material. This tendency would determine the meaning of the term "immortality," which is consistent with either the indestructibility of matter or the permanence of consciousness, or with either a doctrine of metamorphosis, metempsychosis, or with personal survival after death. Which view the Greeks had must be determined in order to interpret the meaning of either "idealism" or spiritualism as applied to their speculative position in philosophy generally.

It is Plato that subsequent generations have selected to represent the anti-materialistic theory of Greek philosophy. The reason for this, of course, was his affirmation of immortality. Had not his statements been definitely on the affirmative of this doctrine less sympathy with his philosophy by later times would have been declared. This is apparent in the comparative indifference shown to Aristotle on this same point, as he was less explicit in the defence of the doctrine, though admitting it for the "rational" part of man. Aristotle was the authority for conceptions and arguments in behalf of a theistic origin of the cosmos, a doctrine which was worked out to indirectly support immortality, after direct evidence was more or less discredited. But Plato has left us an explicit defence of a doctrine of immortality and later Christian thought did not ask any discriminating questions in the interpretation of it when an affirmative doctrine could be used at least for *ad hominem* purposes with Greek and philosophic thinkers who did not know enough of Platonic philosophy to discover its inherent variation from the personal immortality which was the subject of pursuit in Christian thought. It was the fine ethical spirit of Plato that captivated the earlier Christian thinkers, an ethical spirit that coincided with theirs, except that it was more definitely limited in its applications to æsthetic and political life than among Christians. Plato had connected morality with his doctrine of immortality, and in this way it was easy to assume that his view of the order of things was identical with the Christian doctrine of probation and personal immortality, but a careful study of Plato, such as modern philosophy enables us to make, will reveal the fact that it is just as easy to misrepresent the identity of the two positions as it was for the ancients to misunderstand Plato when the fundamental postulates of the Greek philosophy of nature had been forgotten. The psychological and metaphysical points of view in the two movements must be carefully distinguished in any estimation of their relations to the problem which we are here discussing. Their psychological and metaphysical antitheses were expressed in the same terms, but did not have the same conceptions or implications. The psychological antithesis in both cases was between "sense" and "rea-

son" with perhaps comparative identity of meaning. But corresponding to this was their antithesis between "matter" and "spirit" in the metaphysical field. But with the Greek this antithesis was between a sensible and a supersensible reality *within* the physical world alone, while with the Christian the distinction between the "sensible" and "supersensible" worlds was an antithesis between the physical and the superphysical, involving the idea that the "spiritual" was essentially immaterial, while that of the Greeks was only a refined material reality. This fact must be perpetually kept in mind when estimating the meaning of Greek thought and in the interpretation of the doctrine of Plato who only apparently transcended the conceptions of his time and race, simply because he did not clearly break with them, though he certainly brings us to the point where that break is natural, and suggests that he had a glimpse of what he could not make clear either to himself or others.

I shall not assert without qualification that Plato had no conception whatever of a personal immortality of some kind, because we must always remember two things in regard to his philosophy. First, it was cosmopolitan and represented more or less the convergence of every stream of thought previous to his own time, embellished with an art that no other Greek could give it. Secondly, his own doctrines were never worked out with complete consistency nor into a systematic whole like the doctrines of Aristotle. Plato was too much enamored with dialectic as an art and with the dramatization of philosophic discourse, and also too conscious of the sceptical difficulties involved in any dogmatic system, to intrust himself with any final conclusions on one side only of a problem. He was forever looking at both sides of the shield of Hercules, trying to get a unity which he never found in what was essentially double faced to his point of view, and hence could not cut himself free from the monism which *coördinated* mind and matter to adopt either a dualism that coördinated them in a higher unity of mind, or a monism that *subordinated* matter to mind. He accepted as final the monistic postulates of his race which assumed that the individual mind had the same destiny as matter, and was not swerved from it by any antithesis between sense and reason, or between the sensible and supersensible worlds, any more than were the materialists. But, on the other hand, he assigned an ethical value to the intellectual functions of "experience" or to all the higher forms of consciousness without discovering that it might point to a metaphysical theory inconsistent with, or at least quite different from, the conception that the soul was only a refined form of matter with char-

acteristics that associated its action and destiny with all organisms of whatever sort. Between the two conceptions he remained indeterminate, now tending toward one and now toward the other with no final decision of character, and the many-sided convergence in him of all Greek thought had to diverge into later schools to discover the potentialities of his complicated conceptions. Hence the real or apparent contradictions of his system. There were many things in his doctrine that connected him with later Christian thought, both in forms of expression and in the moral purity of his ideas. But in reality this connection is often more formal than material, when carefully examined, and consequently his spiritualistic metaphysics can receive that name only with the qualification that the spiritual consists of the intellectual refinements of art and culture rather than the brutalities of sense and passion.

It is impossible to understand Plato's position without some exposition of what it was in his own terms, with a complete translation of it into the terms and conceptions of later thought. His fundamental conception was a union of the Eleatic and Heraclitic philosophies, and began with a denial of the Sophistic doctrine of the relativity of *all* knowledge while admitting this of sense. He started from the anthropocentric point of view with a psychology that based the origin of all knowledge from two separate sources, sense perception and reason, and for each of these he had a corresponding object. The object of sense was change or "phenomena," the Heraclitic flux; the object of "reason" was the "real" or the permanent, the Eleatic "being." The antithesis between sense perception and intellectual intuition was parallel with the antithesis between the sensible world of change and the supersensible world of the permanent and eternal. The objects of sense were called "phenomena": the objects of reason were called "ideas." With this machinery at his command there began a philosophic play with the facts of the cosmic and human order which has no equal in the annals of thought, for the combined interests of literature, science, ethics, politics and metaphysics. Nothing but a translation of its flights into modern terms will make it intelligible.

With Plato the term "idea" was the open sesame for all philosophic problems. It did duty for at least five distinct things: (1) abstract general concepts; (2) the conferential or universal qualities of things which correspond to these concepts; (3) substance or reality which was the subject of these attributes or qualities; (4) the good or ideal ends of conduct; (5) the formative or active principle in the production of the cosmic order of things, which, with the doctrine that

universal qualities were the "essence" of reality, did not distinguish between the efficient and material cause of what was intellectually seen in the sensible world. A conception so rich in content as this and comprehending such widely different facts and realities was sure to give trouble when any of the concrete problems of thought were brought to it for explanation. The "idea" was the permanent and sensation was the transient, as also was the latter's object. Applied to the soul the question of its permanence would depend first upon its place in this scheme. If it was a sensible "phenomenon" it was transient; if it was a supersensible fact it was permanent. But even after this latter question was decided there was still the more important issue to be determined, namely, whether this permanence represented the conception which modern life takes of it when speaking of the immortality of the soul. This permanent reality of Plato, when carefully defined, turned out to be in one of its widest and most important applications, namely, nothing but the *universal* properties of objects, the common qualities which enabled us to classify them in kind and not to predetermine their destiny, as this destiny was predetermined by the atoms of the materialists, these being realities which were *individual* and having some determinate qualities that persisted through all their changes. But Plato's permanent or "idea" was not individual as the atoms were conceived, except in one case, but was a mode or quality of things representing the metamorphosis of some ultimate reality into the "phenomenal" world of sense without altering its essential identity, and hence was not the result of composition among a number of unities independent of each other. Consequently the conception of individuality with Plato represented the transient or ephemeral and not the eternal unities represented by the atoms. His permanent, the universal, conceived as a mode of reality was the transfused identity of species that were forever changing, appearing and disappearing, with such similarity as would show the persistence of the same kind of material in the metamorphoses and creations of nature, but this permanence of the universal qualities was not the fixed permanence of the substance of the atomists as a unitary reality, but the permanence of a material "essence" which had lost its previous individuality in each incarnation. The difficulty with Plato lay in his simple classification of reality into the accidental or individual and the necessary or universal without taking account of the further and important distinction between simple substance and its permanent attributes, on the one hand, and between composite reality and its resultant "phenomenal" attributes or modes, on the other. This was clear to the materialists who also

simplified the whole problem by reducing it to a question of "matter" and "form," inverting the uses of these terms in Plato. This was first done by Aristotle who employed "matter" to denote, not the sensible world merely, but the stuff or substance out of which the sensible world was made and "form" for the mode in which it was made. In this he simplified the Platonic conception and removed its confusion. With Plato "matter" was the transient fact, the sensible world of "phenomenal" forms which represented the materialist's complex wholes, and the "idea" or form was the permanent fact or reality, the "essence" of things, a conception which was taken to denote indifferently the substance which constituted the object and the quality which determined its nature in comparison with others and distinguished the conferential from the differential qualities of the individual, the last being the evanescent fact of existence. Thus the universal properties and the substance of things were the same, so that the "material" and "formal" causes were identical in the conception of Plato, and when we observe also that he attributed to this "formal" cause, the "idea," the formative or active power of determining the transition from the supersensible to the sensible condition, the evolutionary metamorphosis or change from one form of reality to another, we discover a very complex problem before us in estimating the philosophy of Plato at large and in understanding exactly what he meant by the immortality of the soul, if it is anything more than the persistence of force. A term which does not distinguish between substance and attribute for our way of thinking will not make clear the distinction between the permanence of the substance with the "phenomenal" and transient character of sensible properties, and the persistence of a property or mode of action through all the changes and transformations of the substance. This is indispensable to modern thought which accepts the "phenomenal" nature of organisms and the "noumenal" or substantive nature of the elements that compose them, and wants to know what properties or functions remain to the elements after their separation from a given relation or synthesis in time and space. Assuming that certain properties are the resultant of organization, it concedes their ephemeral character as a consequence, but assumes their persistence if the subject of them is not dissolved with the decomposition of the organism, a conception granted in the very notion of the atoms. Whatever conception of the case Plato may have had, he did not present it in a way to suggest any such view of persistence as is here indicated. He was aware that it was the simple that was imperishable, but in his appeal for evidence he chose the point of view

of universal qualities which described the identity of coexistent and successive species without necessarily implying the identity of the individual and hence its permanence, when defined, became merely the permanent likeness of kind, not the permanence of the same quality in an individual in spite of its separation from a given synthesis. Plato was dealing with a process of evolution, a process which he conceived as the metamorphosis of a plastic reality into evanescent forms, after the doctrine of Heraclitus, and not as the combination of atomic elements with the appearance of qualities as incidents of that composition, though he spoke and thought of the simple and compound in sympathy with an atomic theory without perceiving any real or apparent inconsistency with his primary view, and hence in his conception of the process as a transition, chameleon or Protean like, from one condition to another of a permanent substance, instead of original resultants of changing combinations, he could never decide clearly between a doctrine of *metempsychosis* and a doctrine of *creation*, if I may distinguish in this way between the modal modifications of a single reality and the modal resultant of a multiple of realities. Plato and Epicurus agreed in the permanent identity of substance and they agreed in the "phenomenal" nature of the individual or differential facts of existence. But they differed in their conception of what this substance was, Plato thinking it one and Epicurus thinking it many. Plato was uno-monistic, Epicurus was pluro-monistic. The appearance of individual or differential qualities in Plato was conceived as a modal change of the *same* substance; in Epicurus it was a modal change due to the union of *different*, though similar, substances. With Plato there was no chance for the persistence of the individual quality, but only of the identity in kind of the separate states in which reality found itself; with Epicurus there was a chance for persistence of some one or more qualities, while those incidental to union were transient. Applied to consciousness, Plato's doctrine could only maintain its identity in kind between different individuals in either space or time, but not the persistence of the individual, which was only a "moment" in the process of metempsychosis; with Epicurus, unless it was made an inherent function of the atom, which it was not, it could only be a "moment" in the union of elements, which were persistent without it. To put the same thought in Aristotelian terms which represent modern ways of expression more nearly than Plato, the permanent substance was a plastic matter capable of indefinite modification and could be made to assume any form desired by the creative master or causal principle. Hence the identity or perma-

nence was in this plastic substance and not of the individual types into which it was evolved, except that there could be an identity of kind without a persistence of the differential "essence" of the individual, a point quite in agreement with the materialists who had only to make consciousness a "differential essence" or accident of union to accept the doctrine of Plato. With Plato the "material" or constitutive element was permanent and this, the "idea" or "form," was transmitted from individual to individual, while the functional variant, the Heraclitean modal change, or "phenomenal matter" of the sensible world, itself the individual, was ephemeral. But by taking "matter" to represent the substance of both the sensible and supersensible, the "phenomenal" and the "noumenal" worlds, and the "idea" or "form" to represent the modal differentiations of the primitive substance into the types of the "phenomenal" world, we find that the Platonic permanence meant only the constant reappearance of the same species, not the continuance of the individual.

Plato approached the problem of existence from two points of view which he never completely reconciled and perhaps could not easily have reconciled in his time, if he had tried. He saw both the facts of change and the facts of permanence and he emphasized only the principle of identity in the explanation of all things, that is, the principle of material cause, though he resorted to efficient causes at one or two points without working out this new principle even to account for the fact of change, which was the one that ought to have attracted his scientific and philosophic interest. His primary method, the application of the principle of identity, which he understood better than any other principle of philosophy, was that of observing the actual unity of things in which he found a hierarchy of types reducible to logical classification. He saw that objects could be classified by their properties into genera and species, and these reduced to the *summum genus* and the *infima species*. The former was represented by "*being*" or the universal, which was regarded as "one," a conception which did not distinguish between mathematical unity or singleness and logical identity or similarity of kind which involved mathematical plurality of individuals. The latter were the *individuals* that made up the real objects of the sensible world, these being conceived in an equivocal manner, now as constituted by a synthesis of conferential and differential, or universal and accidental qualities, and now as a differential accident, a "phenomenal" change, attached to a permanent supersensible reality, evidentially indicated by its identical modes in the transmutations of species. Of this again. The "ideas"

or "forms" were the common properties, the conferential or universal qualities of things, and the differential constituted the individual or particular qualities. But his chief interest lay in the common or universal qualities which he could describe as the "essence" of reality on the assumption that they represented the perdurable in the cosmic evolution, that is, the identical element in change while that which changed was individual and transient. He supposed that the "ideas" or universal qualities were all evolved from an ultimate reality, being, which stood as the one reality or "substance" capable of giving rise materially to all that was found in the individuals except the evanescent, that is, the conferential qualities which showed a perdurable "essence" making them the same in kind either coexistently in space or successively in time. Thus, to take an illustration, *elms* and *oaks* are each a species of *tree*. Elms and oaks have certain differential properties which do not belong to all trees and which distinguish each from the other. In fact, we might say that the real meaning of the terms is the differences which make the term *tree* incapable of indicating all that is meant by either term. These differentiæ are the individual, transient, or accidental qualities, in Platonic parlance, which, if the case is an individual in the proper sense of the term, can never be repeated. But the common properties which are expressed by the term *tree* do not represent for Plato merely a quality of the species but also the material which existed and may exist independently of the species or individual in which they are found. It does not mean that there is an independent individual tree, apart from oaks and elms, which forms their character, but a material which is drawn upon and is permanently of the kind to determine their similarity and unity. Here is found Plato's close affiliation with the atomic doctrine which was only another form of the general Greek conception that all things were formed out of "stuff" or material causes. The universal properties were from eternal "stuff," the accidental properties from transient material. We should say that "tree" is an abstract term not representing any other reality than a modal one, a quality of the individual subject or organism in which it appeared. But Plato seeing that there was a resemblance in kind between coexistent and sequent species and individuals sought a material cause for this identity and persistent fact, and not using efficient causes to account for any thing like a quality and not being able to explain the contingent and evanescent "phenomena" materially, had to treat them as transient. But the universal qualities were constituted out of preëxistent and post-existential material, in which they participated as a "substance" or

"essence" out of which they were made. They are supersensible realities, though there is sensible evidence of them. But here Plato meets a fundamental difficulty. He has to recognize the evidence in the sensible for that which is supposed to survive the sensible, and when this evidence is produced it is the identity in kind of the two sensible individuals, and this identity is the basis of what persists through the changes or transmutations of species, so that after all some sort of identity between the sensible and the supersensible is assumed, and this apparently contradicts the assumption of an antithesis between them. This would explain Aristotle's accusation against the Platonic "ideas" that they simply "eternalized the things of sense" when they should have recognized the antithesis which the main principle of his philosophy represented. Aristotle clarified the matter by frankly representing the "ideas" or "forms" as sensible properties along with the Platonic "matter" or contingent and differential qualities, and by extending the term "matter" to express the supersensible reality or substance whose evolution produced both the transient and the permanent, or the accidental and universal qualities, the difference between the two being one of relative permanence or relative transiency. Plato seems to have been governed by assumptions analogous to that of Anaxagoras whose homoiomeriæ, supersensible realities or atoms, represented the material source from which the qualities of the sensible world were drawn. The qualitative identities and differences were due to the fact that the respective qualities were found in the original elements forming the composition, and variations in the totalities were due to variations in the numerical character of the units composing the wholes. But Plato abandoned the conception of a union of this kind while he retained the idea that the identity of kind in the sensible world was deducible from an identity or persistence of the same material in the supersensible world. In other words he substituted transition from the supersensible to the sensible for elemental composition and holds to an identity in the process in spite of the fact of change. Plato considered that this substance which gave unity and permanence to reality was more essential than other things and hence he had a ground for a kind of unity which was not so apparent in the conception of Anaxagoras who explained the *order* of the cosmos by his efficient cause and its variety by the qualitative differences of the elements, these being a material cause. But while he also had a material cause for all the qualitative characteristics of the sensible world, he had no principle which exhibited the kind of unity and identity which so fascinated the mind of Plato. With Anaxagoras the unity

was rather teleological than ontological, and hence material causes were incidental to the efficient. With Plato the ontological cause was the most important and the efficient in the end identified with it. Now the "ideas" of Plato supplied the want and served as both the efficient and the material cause for things, thus bringing Plato into close harmony with the atomists in his exclusion of a *deus ex machina* from his system.

But it is precisely this failure to distinguish adequately or consciously between efficient and material causes that creates the trouble in his system when it comes to dealing with the problem of immortality, or the permanence of any fact conceived as a property of things, as known. The "phenomenal" required a cause and could not have a "material" cause or "idea" and ought to have had an efficient cause to make its appearance intelligible, while the permanent involved no distinction between the two kinds of causes and implied no essential change in its manifold forms, though we sometimes suspect a fluctuating conception now of identity and now of antithesis between the supersensible and the sensible condition of the "ideas" or material causes of the "individual" realities. The inconsistency here and the failure to account for the "individual" or "phenomenal" reality by material causes suggests the possibility of either seeking a material cause for this or demanding that the universal shall have an efficient cause which might indicate an antithesis between it and its subject as was that between the "phenomenal" and the reality of which it was an effect. But Plato took the former alternative, as we shall see presently, and thus showed clearly the logical tendency of his system. This was the conception of metamorphosis which assumes a change of modal action on the part of the real rather than the persistence of the condition or subject in change. With Plato the subject disappeared while the attribute remained without retaining any identity of an individual kind. Its identity was general and abstract. His process of evolution involved a metamorphosis of reality into "phenomenal" forms and the identity was that of resemblance in these forms from generation to generation, so that the permanence was not that of the individual but of the type or race. He might consider consciousness as an "idea" or universal and secure its immortality, but this immortality was not and would not be of the individual consciousness as later conceived, but would only be that of the persistence of type or of the supersensible reality which metamorphosed itself into the ephemeral forms. His conception would be somewhat like T. H. Green's "eternal consciousness," which, when it was defined, had to be described in terms

that were the negative of the individual consciousness! Had it not been for the conception of metamorphosis involved in the passage from the supersensible to the sensible form of reality, even when he was dealing with universals, the notion of identity might have been different from what it actually was. But Plato was unconsciously playing a double game with his universals, the common properties of things. On the one hand, they were contrasted with the individual or differential properties which were accidental and evanescent, and so were the perdurable facts of existence, and, on the other, they appeared as sensible properties quite similar to each other in relation to the complex wholes in which they were found, the idea of metamorphosis being used to suggest their continuance in change while that idea was not used to explain the "phenomenal," except as will be shown presently. Thus the opposition between the individual and the universal, the differential and the conferential, was not made complete, but kept in that confusing condition which is shown in modern logic in the use of the terms "genus" and "species," on the one hand, and "genus" and "differentia," on the other. In one of the pairs, "genus" includes the other, "species," and in the second, it excludes the other, "differentia." Now as "differentia" is included in the species as its essential characteristic, we have the apparent contradiction that the "genus" simultaneously includes and excludes the "differentia." The illusion is explained easily by showing that in one case "genus" represents the concept *extensively*, in which the "species" is numerically or quantitatively contained in the class, and in the other represents the concept *intensively*, in which the "differentia" is excluded qualitatively from the conferentia. Now Plato's "ideas" or universals fluctuated between two conceptions of them, now including the sensible properties which shared, "participated," in the reality which was metamorphosed in the process of evolution, and now excluding the sensible properties which were evanescent and did not "participate" in the permanent. In other words, the universals were now conceived as sensible properties of the individual on a par with the differentiæ as properties, and now as the permanent realities which survived the disappearance of the sensible forms without retaining any of the identity observable in sense except as this reappeared in subsequent forms of the process of metamorphosis. Consequently, when Plato conceived any "idea" as a universal property he represented it, not as a permanent thing for the individual in which it appeared for the time and which was ephemeral, but as a permanent substance from which this material quality could be drawn for other individuals in

space and time and which had to change its form in the process of evolution, while the sensible qualities appearing as conferential could only "participate" in this permanent and hence no individual manifestation of it exhausted its nature. When applied to consciousness this conception of persistence could only mean the persistence of the general or abstract consciousness for the race, and not the persistence of what we mean by the individual consciousness, or personal identity.

There is another way to reach the same conclusion and this is through his conception of "matter," which we have seen represents the transient or ephemeral as embodied in the sensible world. The sensible world was the metamorphosis of the supersensible, the "appearance" of the transcendental or transphenomenal in forms which simply "participated" in reality. Now in his determination of the unity and identity of things about him by his logical classification, Plato was confronted by the fact of variety and difference quite as emphatic and significant as the unity and harmony of the world. This is the crux of his system, and unless he can solve this he has a dualism that contradicts the evident monistic sympathies of his general thought. For everything else he had a material cause, a permanent identical reality which survived all change. But this transient world of sense disappeared and apparently had no material cause to explain its existence, but only a latent and undeveloped recognition of efficient cause which had no permanence. But the fact is that Plato gave as clear an explanation of difference as of identity, though he did it as a sort of after thought and without any specific recognition of efficient cause as distinct from material causes. All scholars will remark that, when pushed to account for "matter," variety, difference, or "phenomenal" change on the basis of his principle, Plato finally asserted that "matter" had an "idea" of its own. This conclusion involved an irresolvable dualism in his system opposed to its monism, but it was the only course that he could take without admitting efficient causes as distinct from the material. But this admission of a material cause, or "idea" of its own, for "matter" or difference and variety in nature, assumed something indefinite or even infinite in quantity at the basis of "phenomenal" reality, while the supreme "idea," being, which lay at the basis of all unity and identity was *one*. The contradiction in his system is thus quite apparent. But it is not a contradiction on the ground that it is an explanation of "matter" by a material cause, but because it is an admission of an eternal principle at the basis of change. In its application of the principle of material causality, even to "phenomena," it was consistent enough, but the incon-

sistency lay in the recognition of an eternal or permanent where his original conception excluded it. The original antithesis between the transient and the permanent, the "phenomenal" and the "noumenal," "matter" and "idea," implied that the former had no substantive basis, and that the only permanent reality was that which constituted the universal qualities in changing individuals, while he was left to explain difference or "phenomenal" change either as the atomists did, namely, as the contingent effect of a union of elements, no matter what conception of the elements was maintained, or as a sort of epiphenomenon attached to the main current of the evolutionary process. But having set up a permanent basis for the "phenomenal" as well as the universal properties of things, he simply had to choose between an unintelligible dualism and a monism which treated both the conferential and the differential facts of existence as functions of the individual, both of them as modes which permitted the disappearance of the form while the substance remained persistent. As he admitted metamorphosis for the universal properties and this doctrine of an "idea" or substantive material cause at the basis of "phenomena" permits the same conception to be applied to differences, the only way to get any unity in the system is to assume that the only real difference between "matter" and "ideas," or between the "phenomenal" and the permanent, is the possibility of reappearance or repetition in the one and the impossibility of the appearance of the other, a position which could only be proved by the facts and not by any principle of the system. When difference and change had an eternal principle which was not identical either with the permanent or with the individual as a whole, there was only one course open to secure unity in the system and that was the course taken by Aristotle, who assumed that both the transient and the permanent were modes of substance, which he conceived as monistic, while the atomists assumed the same relation between attributes while they substituted pluralism for dualism, Plato tending toward the latter by virtue of his "idea" for difference. But the moment that he suggested an eternal principle for change and admitted metamorphosis or "phenomenal" change for sensible universals he exhibited in all its clearness the fact that there was no *material* difference between the transient and the permanent and the identity so strongly affirmed of the permanent in its transmutations was not that of the individual but only of the genus. As applied to consciousness or the soul this only meant the immutability of the type, and not of personal identity.

This conclusion is again reinforced logically when we come to con-

sider that in the Platonic system all intermediate species between the *summum genus* and the *infima species* had to be distinguished by properties that were relatively either differentiæ or conferentiæ, as we please. As differentiæ they had no absolute permanence, and they were conferentiæ only for the species in which they were found while they were differentiæ for the genus or higher species. The consequence was that the system had to be tested by the conceptions at the basis of the two extremes, the *summum genus* and the *infima species*, the former representing *being*, or one universal, and the latter individuals, or many. This involved the supposition that all individuals were the metamorphosed types of the one ultimate reality, the emergence in the sensible of one supersensible reality, the differences and "phenomenal" modes predominating numerically over the permanent. In this everything but the one became evanescent. To this only one predicate was applicable, and that was "being" or existence, and as the individual was wholly sensible, in spite of its relative universals, nothing in it survived but substance. All its modes were changeable, though there were relative degrees of permanence between them.

In this opposition between "the one" and "the many" it was only a question as to which of the two should be declared substance and which mode. The atomists seized upon multiplicity to assert that it was this which was permanent and substantial, making the atom the conception of individuality, and that the universal was a modal quality of things, transient in composite forms and permanent in elementary realities where it was not a resultant of composition. On the other hand, the Neo-Platonists seized upon unity to declare that only the absolute or one universal was eternal and the individual, a modal change in it, was transient and evanescent. Thus Plato's complicated system was capable of development into two opposite schools in neither of which was consciousness a permanent fact. In both nothing but the substance of the "soul" was permanent, and at no point was the universal and the individual united in a way to preserve the permanence of the latter with the permanence of the former, until the individual was made a *simple* being instead of composite, and "phenomenal" change denied of it, except as modal action. The atomists assumed that weight and motion were the universal and permanent properties of their elementary substances, and made consciousness a contingent and accidental property of composition, so that it was evanescent. Any system which showed that consciousness was not a resultant of organization, whatever might be said about atoms, prepared the way to dispute the inference which atomism draws regarding consciousness

and its disappearance with the body. We shall meet with this conception of the case later in the reconstruction of the philosophic problem. But Plato could not propose it with his doctrine of metamorphosis which applied equally to the transient and the permanent, whether he was dualistic or monistic, and which allowed no individual identity for universal modes and no universal identity in modal changes.

But side by side with Plato's doctrine of metamorphosis existed another conception which was not exactly consonant with it and which tended toward a different philosophic system. This reappearance in other successive individuals of the same kind of properties as were noticed in their antecedent individuals suggests a point of view quite different from that of simple metamorphosis. In the first place, he needed to distinguish between the spatial and the temporal "universal." The spatial "universal" was similar qualities in coexistent species, and so represented in their substantive source different parts of the same whole. The temporal "universal" was similar qualities in successive species, but represented the *same* part of the same whole in different stages of its evolution. If the temporal "universal" had represented *different* parts of the same whole appearing at different moments of time, even though they were similar in kind, the disappearance of the individual would have been no mystery and there would have been no reason to suppose the continuance of even the universal by any form of transmission to successive individuals of the material which had constituted their antecedents, but only the appearance of "phenomena" similar to the past process of evolution. Now Plato assumed this latter conception of the case while he assumed the former idea of the temporal "universal." He had a chance to maintain the persistence of personal identity by supposing that the transmitted property from one individual in time to another was the same as in the antecedent, and hence to maintain the doctrine of metempsychosis in a form similar to a theory of resurrection, allowing identity of modal action with change of embodiment, as in the transmission of motion. The atomists might have done this if they had admitted that consciousness was a function of the elements and not a resultant of composition, as we find some of the modern atomists actually forced by their logic to do. But they and Plato were near enough together in their conceptions of the case to make consciousness an accident of composition while its identity in different species was logical and not real. With Plato the transmission of the permanent from individual to individual was too closely affiliated with the conception of metamorphosis at the same time to enable him to see how he might have advocated a doc-

trine of immortality which would not be subject to the objection that it involved nothing more than the immutability of species. He simply combined the conceptions of metamorphosis and transmission in a way to obtain change at the expense of identity and identity at the expense of individual permanence where that individual was not the absolute. It is possible to unite transmission and metamorphosis in a way to admit a function for both, as modern atomism does, but Plato allowed the transmission and metamorphosis to be simultaneously applied to the "universal" when his doctrine of transmigration required him to apply transmission to the "universal" and metamorphosis to the "individual." But as his ultimate principle was both "universal" and "individual," that is, permanent substance and mathematically one, this unity of the "universal" and the "individual" was not the same as that system which made the individual a substance and the "universal" a quality of it. Consequently, while one conception of Plato might imply the continuance of certain properties beyond the moment of the present, the other denied it, and Plato chose the alternative which led directly to the denial of personal identity in the transmutation of reality while an abstract identity remained.

Had Plato's "idea" been less abstract, less elastic and equivocal, so many tendencies in his system would not have shown themselves. But a term which did duty for abstract general concepts which had no corresponding individual reality; for the qualities of "phenomenal" reality which were mere simulacra of absolute reality; for the supersensible material out of which the essential qualities of things were made and which was not "phenomenal" at all; for the formative or active principle of things as well as the material; and for the *terminus a quo* or end of either things or conduct, the *telos* toward which evolution moved — such a conception was well qualified to give rise to as many systems of metaphysics as there are distinctions necessary to make its import consistent and useful. This, of course, was what subsequent philosophy did in various ways. Aristotle simply extended to the supersensible the concept of "matter," which even in Plato, as we have seen, had to have an eternal principle, and accepting evolutionary metamorphosis as the process of change, and the modal character of universal properties, considered individual wholes as the "forms" of this ultimate reality in its activities. The material cause was not the "ideas" but the "matter," the indefinite substance whose modes constituted the forms of things as we perceive them in sensible experience, these latter being the transient and the former the permanent fact of reality. The conception was not clearly applied or

developed in connection with such problems as the soul, though the rational element of this was said to be imperishable. What this meant no one knows. All that is clear is that Aristotle had no definite tendencies toward the atomic doctrine in its conception of plural absolutes, though his conception of universals prepared the way for the treatment of them as ephemeral, just as in the atomic theory. But there was an indefinite or latent suggestion of an atomic doctrine in his system in that the matter or indefinite reality which constituted the material cause of the sensible world depended upon some efficient cause to effect its initiation in cosmic evolution and systematic arrangement, so that this *primum mobile* as a cause outside the reality, which it moved, started the speculative impulse away from the idea of evolutionary metamorphosis toward that of evolutionary composition, or the synthesis of multiform elements instead of modal manifestations of a single absolute, and atomic theories are the immediate consequence, especially that the *primum mobile* is not necessary to sustain the process once initiated. Plato's view of "one and the many" led equally to Epicurean atomism, Neo-Platonic pantheism and Christian theism. Taking the Anaxagorean conception he could have a single principle that ordered a cosmos of elements that were permanent, a point of view at least partly reproduced in Aristotle's *primum mobile* and the sensible world. Then assuming that the "one" was the only eternal principle he could make the "many" its transient and ephemeral modes, as in Neo-Platonism. Closely related to this and yet uniting in it some of the elements of the atomic theory we could have the Christian's God as creator of the "many," whether atoms or functional modes, a conception combining more or less of the Anaxagorean, Aristotelian, and Epicurean principles. The persistence of consciousness could be obtained either as a conditional resultant of the divine will or as the natural consequence of an order once established by that will, in accordance with the law of inertia.

I have dwelt upon the various tendencies after Plato to show the indeterminate nature of his fundamental conceptions and to indicate that those who were nearest him were less likely to misunderstand his conceptions than those who had adopted a philosophy of the soul and its immortality upon different grounds, and who were likely to appropriate facts and affirmative language wherever the influence of authority could be utilized without troubling themselves to interpret it according to conceptions actually at variance with their way of thinking about the cosmos. That is, the historical setting of the Platonic problem and the nature of his arguments and conception of the soul

are easily misunderstood by all who do not interpret them by the general spirit and conceptions of Greek philosophy instead of the very different points of view accepted in a later period. The practical evasion of the problem by Aristotle, the obscurity of the Stoic view, and the denial of immortality by the Epicureans show that Plato's position had not affected conceptions and convictions to any extent, except we suppose that successors understood it to mean what it did mean, namely, a doctrine something like our doctrine of the conservation of energy.

I shall not deny the existence in Plato of "momenta" looking toward the very doctrine which is not logically deducible from the conceptions which philosophers have agreed to regard as more fundamental in the system than those which either suggest or sustain the Christian theory. The description of the joys and perfections belonging to an existence independent of the body, the consequences of vice and the rewards of virtue, and all those various conceptions of ethics which represented moral conduct as pointing to a future existence for which the present was conceived as a probation, quite as definitely as Christian thought, are characteristics which make it almost impossible for a layman to distinguish between Plato and Christianity in these respects, and it is quite possible also that Plato did not realize the inconsequence of his conceptions and arguments for a view actually held but not supportable by his philosophy. But it was certainly natural for the early church to make an exception of Plato in the common fate which was assigned to the pagan world. We forget two things, however, in our enthusiasm and applause for the orthodoxy of Plato. There is first the fact that he does not look upon the ethics of the incarnate life as in any way different from that which is supposed to prepare for the future. He would not distinguish between morality and religion. He was not disposed to regulate the present life by any definite conception of the hereafter, but solely by the demands of the present existence for the highest culture. He loved life and nature, as the Christian despised them. He was no despiser of art and social life, no ascetic beyond the demands of temperance, and self-control. His ethics and religion, whatever place they have in preparation for another existence, are essentially terrestrial and do not savor of imaginary ideals in some transcendental world not intelligible to us. They keep the eye of conscience on the present life, though they do not refuse another, and grant this other life as a natural consequence of the present. But above all we forget the second fact that this other life was conceived as a reincarnation, a transmigration of the soul into another embodiment, while he also

extends this doctrine of reincarnation to the interpretation of the present bodily existence. He does not hold that the soul is permanent or immortal by virtue of the will of a creator, but that it is naturally immortal, in the past as well as the future. He accepts its eternity in both directions. He would not admit a future life for any created thing. Christianity was forced to construct its conception of the case by its doctrine of the created nature of the body and soul. Having admitted that they were creations it had to shape its philosophy so that the soul should not perish, and it took two directions in this. The first was what is called conditional immortality, depending solely upon the will of the creator in accordance with the character of the individual's conduct. The second was accepted upon the Aristotelian conception of creation, which was that an act of initiation was necessary to account for the existing order and that after this its course was natural, and this position was supported by the doctrine of inertia. But Plato assumed that whatever had a beginning would have an end and thus agreed with the materialists. All composites were perishable and ephemeral. Plato could understand immortality only on the condition that it applied to the past as well as the future. But right at this point arises the crux of his whole doctrine on this question. He admitted that there was no conscious memory of this past, and it was evidently the unanswerable cogency of this fact which forced Christianity to reconcile its conception of survival with the acceptance of an origin for the soul. But as Plato could not affirm a consciousness of a past incarnation he had to assume that the same was true of future reincarnations, and in this way his doctrine denied a *personal* immortality in quite as effective a manner as his theory of "ideas" or universals. The transmigration of the soul from embodiment to embodiment did not carry with it that essential characteristic which would give continuity to consciousness, but assumed that this function was a contingent effect of its incarnation, a view identical with that of the materialists, except that Plato had provided for the conservation of energy as the materialist had not done. It is probable that Plato accepted personal immortality when he wrote the *Apology* under the stress of those powerful emotions which the admiration of all great and noble men must feel in contemplation of the character and death of Socrates. But when these had cooled and his philosophic genius had returned to the more scientific spirit, he came under the influence of the prevailing conceptions of permanence and change which made substance eternal and its modes ephemeral. In spite of all that is said, therefore, the Platonic conception of the "soul" is that of a function

of the organism, in so far as its differential essence is concerned, and this is personal consciousness involving memory and unity of modal persistence. Unless this characteristic can survive with integrity enough to have some conscious relation and connection with its past in the material world there is no such "soul" and no such immortality as later speculation maintained.

There was another and singular feature of Plato's system which pointed in his estimation toward the discovery of the truth in regard to nature, the truth that the sensible world was not its real and only form. Plato recognized that it was not the common man that could discover the nature of things. It was only the extraordinary man, the man with special gifts, the seer, the prophet, the genius, that could gain entrance into the secrets of the universe, or discover and follow Ariadne's thread out of the labyrinth, and in assigning these endowments to the philosopher Plato was not unmindful of the reputation which that class had with the generality of mankind. Greek history laughed at Thales for falling into a well while gazing at the stars and meant by this legend to characterize the philosophic class as impractical cranks. Plato could not escape the consideration of a man like Socrates in making up the conditions of insight. Here was an Athenian bore and a tramp, out of all harmony with the beauty-loving Greeks in his physical characteristics and habits, pestering his neighbors and fellow citizens with questions and arguments on all sorts of subjects and in a way that would induce our less tolerant civilization to arrest him and send him to the woodyard, but with a power of insight and dialectic that could confuse wit and humble pride as much as it discerned the truth without asserting it. Here Plato saw that the man who discovered the truth must be sufficiently divested of the prejudices, foibles, fads, and follies of his age to disregard them in his estimate of reality, and must permit himself to be ranked with the castaways of mankind, if he expected to escape the petrified traditions and illusions of the common man. Hence Plato thought to find the conditions of the most far-reaching insight in some form of "madness" or abnormal mental qualifications. Hence he was disposed to classify genius, madness and crankism together, finding in deviation from ordinary illusions the path to wisdom. Plato knew that Socrates had consulted the oracle at Delphi, a phenomenon probably much like the consultation of spiritistic mediums in modern times and as often a mixture of shrewd wit, delusion, secondary personality, insanity and fraud, with occasional cases of supernormal suggestion, and this knowledge on Plato's part might well suggest to him the conception that the truth of things would

be discovered in a borderland condition beyond the sensuous experience of the multitude. He also knew that Socrates was governed by a "voice" which directed his actions, or rather abstention from action, in certain instances, an abnormal phenomenon with which modern psychology is perfectly familiar as automatism, and that it was possibly the object of Socrates in his consultation of the Delphian oracle to test its pretensions in comparison with his own powers, so that it was no wonder that Plato, with encyclopedic interests should turn a curious attention to madness. Even Aristotle admitted facts that suggested some sort of supernormal insight and accepted them as deserving of his scientific attention. The Neo-Platonists followed these examples into magic and trance phenomena, and Epicurus admitted the existence of the gods on the evidence of dreams, and only denied them a causal influence on the order of nature, assigning them as blissful an existence in the intermundia as Aristotle gave to God outside the world watching it go and as the Christian world gave to discarnate souls in a paradise independent of material embodiment and complications. Even Kant paused long enough on the threshold of this awful wilderness to seriously study the phenomena of Swedenborg and came away from them with his distinction between "noumena" and "phenomena" and the frank admission, after his exposition of the antinomies, that the spiritualist's claims could not be disproved by the "phenomena of experience." But philosophy has never been able to endure intellectual debauchery and whenever it could recover its natural calm and feel the necessity of controlling life by normal conceptions, it has sought to find the explanation of "phenomena" *in* normal "experience" instead of discrediting this for the abnormal, even though we must ultimately find a unity for both and might discover in the abnormal wandering and sporadic facts that afford an imperfect glimpse of a cosmos larger than ordinary "experience." Antiquity had no instruments for its guidance in this field and hence it was well that the saner philosophic speculations, avoiding its quicksands and quagmires, confined its reflections and ideals to normal life. At any rate, before the scientific spirit of Aristotle could be developed, Greek civilization was on its way to the grave, and another and religious impulse revived speculation regarding the soul and its destiny, with all the passions of barbarism in its wake to reinforce its convictions and interests.

When Christianity took up the problem it was not as a subordinate part or a corollary of a larger philosophy of the cosmos, though it finally became this, but as the conclusion from an alleged fact. There was no dominant intellectual movement of the metaphysical type in

the country in which the doctrine of immortality was revived in a new form, but only the aftermaths of Greek culture, more particularly of Neo-Platonism and Epicureanism. The Hebrews were preëminently an ethical and religious, and not a philosophical race, if we may take Greek thought as the standard of measurement. They had neither absorbed with any enthusiasm the philosophic ideas of their neighbors nor created any of their own having a similar purpose. There was just enough of Greek culture to divide such as were willing to depart from purely Hebrew tradition into two tendencies, those in sympathy with Neo-Platonism and those in sympathy with Epicureanism, and even these came just as ancient civilization was setting in thunder clouds. Palestine had been subjugated by Rome, a civilization that carried no philosophy or culture in its wake, and here amid the ruins of its own civilization and the decline of the Roman empire, there arose a conception of the soul and its survival of death that soon made the conquest of the world against the whole influence of Greece and Rome, the philosophy of the one having ended in materialism or despair and the morals of the other in the debaucheries of power and conquest. Whatever moral and social impulses may have inspired the origin of what is known as Christianity or gave it a mission in that critical period of social disruption, it is a matter of history that it soon concentrated in a religion based upon a doctrine of personal immortality or survival after death. We need not examine all the motives that led to this consummation, as we are concerned only with the one that terminated in the necessity of a metaphysics. This motive was not a theory of the cosmos to start with nor even a theory of the nature of the soul, but a simple appeal to an alleged fact which required an explanation. This alleged fact was the resurrection of Christ, his personal reappearance after death.

I am not concerned with the origin of this story nor with either its truth or its falsity, but with the fact that the allegation was made and believed. This was quite sufficient to start a philosophy, just as the alleged influence of weight on downward motion was sufficient to serve as a basis for materialism. A philosophy may follow as readily from a false assumption as from a fact. Now it is to be especially remarked that the story of the resurrection did not bring with it any preconceptions of the material or immaterial nature of the "soul." All that it implied was that personality or personal consciousness survived the change called death and we were left free to denominate its subject as we pleased. Hence on any conception of the substantial nature of the "soul," it denied the assertion of the materialists that personality dis-

appeared with the body. Here was a direct issue with that school based upon alleged fact and a regressive inductive inference rather than a progressive deductive inference from a preconceived notion of the nature of the "soul." The conclusion was not founded upon a denial of the materialist's metaphysics, but upon the allegation of a fact which contradicted the conclusion from that system, or if not the natural conclusion from it, the opinion maintained by the school in regard to survival after death. Materialism was thus made to choose between the denial of the fact of a resurrection and the implication of its doctrine that consciousness was a function of the bodily organism. Christianity simply presented an alleged case of actual survival after death against the asserted impossibility of it by the materialist. Philosophy was challenged to explain away the fact or to accept its significance. Accepting its truth and significance, the next task was to create a system of which this possibility of survival was a necessary consequence or a part of a cosmic scheme.

The allegation of Christ's resurrection appears, superficially at least, to have represented a wholly new conception and it impressed later philosophers of every school with the conviction that it was a totally supernatural conception and that it violated every principle of Greek philosophy. But whatever can be said about the authenticity of the story, it is an illusion to suppose that the idea was wholly new or that it was in total contradiction with any of the Greek philosophies except Plato! It was a conception that grew right out of materialism itself and was a very natural inference from its doctrine of the "soul." All that it contradicted in that system was its assertion, not supported by its conception of the "soul," that survival was not a fact, while it appropriated the doctrine that the "soul" was an organism of very fine matter or atoms complementary to the physical body which suggested that its integrity might not be dependent upon the bodily organization. Thus the new spiritualism, instead of following in the wake of Plato, Aristotle, and the Stoics, or the pantheistic nihilism of the Neo-Platonists, as later philosophy did, simply grew out of Greek materialism! That this materialistic theory had to some extent permeated Judaistic thought is apparent in the controversy between the Sadducees and Pharisees on this point. These sects had apparently discussed the immortality of the soul and divided upon it before Christianity arose, the former denying and the latter affirming, not only its persistence, but also a doctrine of resurrection. The Sadducees assumed that the soul perished with the body and did not "rise" again; the Pharisees assumed that it survived death and so

"arose" from the grave. The one accepted the negative, and the other the positive conception of the materialists in regard to the nature and destiny of the "soul." The reader will remember that I called attention, when discussing it (p. 368), to an inconsistency in Greek materialism in its doctrine of the "soul." It actually admitted that the "soul" was a fine material (in later parlance, immaterial) organism inhabiting the body, and did not explicitly assert that it was a modal function of the physical body that perished. I remarked that this concession was inconsistent with the dogmatic denial of survival and that the doctrine might be converted into a basis for immortality rather than an argument against it. This was all the easier for the reason that ancient thought did not make any clear distinction between the supersensible and the superphysical, and it made no difference in the case, whether it did or did not so distinguish them because all agreed that the "substance" of anything was permanent and only the functions of composite organism were transient and perishable, so that materialism could escape a fatal *ad hominem* argument only by giving up the conception which it had maintained regarding the soul and by treating it as a function of a perishable organism. This latter was the alternative which the later and modern materialism took.

Now in this connection there was another conceptual development of some interest. Ancient thought of all kinds assumed the Ptolemaic conception of the universe. This made the earth the center of it, the point toward which all heavier and coarser matter gravitated, and the finer matter arose heavenward. The Epicureans were the exception to this and made all matter gravitate downward with the same velocity. We know what a prominent place this doctrine of the downward tendency of heavy matter and the upward tendency of lighter matter had in earlier Greek philosophy, and that in Aristotle and others it took the form of asserting that the stars were "divine" beings. We have then the conception that matter of the heavier or grosser sort tended downward, and matter of the finer and ethereal sort tended upward. When this distinction took the form of "matter" and "spirit," it was clear what the natural tendencies of thought would be in connection with the general doctrine of Hades or the "underworld" and the materialistic theory of an ethereal organism, especially when the idea was combined with an ethical and probative scheme of the cosmos. Both Greek and Hebrew thought of the common type admitted the existence of an "underworld" which was a sort of undefined depositary residence for departed bodies and "spirits" alike, the bodies ultimately disappearing. But it was a natural and logical sequence of the conception of

the body as gross matter and the "soul" as ethereal matter, that either at death or some time later when fully released from material associations, the "soul" should *rise* upward, and we should have a doctrine of the resurrection. All that was necessary to effect this result was to frankly accept the materialist's conception of the "soul" and to apply the assumed fact of the gravitation of heavier matter and the levitation of the lighter matter to represent a complete conception of a resurrection as the natural inference from materialism! Then if we add to this the distinction between good and bad souls, the virtuous and the wicked, along with the Platonic idea that the sensuous souls were so attracted to grosser matter, in modern spiritistic parlance, "earth-bound" spirits, and that the finer souls were attracted to a more "spiritual" or ethereal environment, we can understand the evolution of the ideas of Hell and Heaven, as simply modifications of Hades or Tartarus, on the one hand, and of celestial space, on the other. The whole scheme of rewards and punishments arose naturally out of this idea of a connection with the gravitation of the body and the levitation of the soul, as soon as it was connected with ethics. But the important point to keep in mind for metaphysics is the naturalness of a doctrine of the resurrection, as a logical consequence of the admission of Greek materialism in connection with the accepted gravitation of gross matter and the levitation of ethereal matter or the "soul." There is in it a perfectly clear opportunity for the conception of a "spiritual body" such as is evidently suggested in the doctrine of St. Paul, who was acquainted with the "sect of the Epicureans," as he chose to rebuke some of the early Christians for their disposition to run after the "rudiments of the world" (*στοιχεῖα κόσμου*), atomic speculations about the origin of things, and in his assumption of the "spiritual body" he might have granted any materialistic theory of this "matter" as long as the "spiritual body" inhabiting the physical organism was conceded.

It is thus quite apparent that there were definite philosophic antecedents for a doctrine of the resurrection, and this of the "physical" type before any allegation of its being a fact had been made. There was nothing in the materialistic and religious theories of the time, as we have just seen, to render one type of a "physical" resurrection antecedently impossible. Only the resurrection of the ordinary "physical" body was calculated to arouse scepticism. We have also found actual traces in the division between the Sadducees and Pharisees of a belief in the resurrection, and it only remains to remark the circumstances which might easily give rise to the story of Christ's actual res-

urrection without any conflict with the materialistic philosophy as then conceived, but only with the uniform human experience that the sensible physical body perished, and the absence of common reappearances after death. The primary circumstance, of course, is the fact that, with no clearly drawn distinction between supersensible matter and superphysical reality, there would be no difficulty in accepting a "physical" resurrection of the ethereal type and in giving credence to the story about the mode of Christ's triumph over death. The conception did not represent an entire break in the continuity of human thought, but was, in some of its features at least, an effective *ad hominem* construction of materialism, a necessary consequence of admitting the existence of a "spiritual body" and denying by implication that consciousness was a function of the grosser physical organism. The story thus simply fitted into the preconceptions of the prevailing philosophy of the time and claimed to give an "empirical" fact requiring explanation and a consequence or illustration of that theory, a fact which every one might verify by asking for the testimony of competent witnesses. In other words, the ground was already prepared for the doctrine of the resurrection, as supposedly proved by an instance of it, in the antecedent philosophic system of the time which it both developed and overthrew, effecting the result, however, only by forcing materialism to choose between one or the other of its claims and to make its system consistent, that is, between accepting the denial of survival with the implication that consciousness was a function of the bodily organism and holding to the conception of a "spiritual body" with its implication of personal continuance after death. It was precisely this conformity to philosophic conceptions of a crude sort that explains both the acceptance of the story of the resurrection in the genesis of a new religion and the liability to a misinterpretation of what might actually have occurred. It is quite easy to suppose that an apparition of Christ was experienced by some of his disciples after his death, and whether we treat it with Renan as a subjective hallucination due to excitement or with others as a veridical hallucination, such a phenomenon would naturally appear to fit in with the materialistic theory of the "spiritual body" with all who were inclined to assume a real significance in the experience, while the wide acceptance of it and the manner and confidence with which the new sect concentrated upon it, as a basis for a new theory of things, go far to suggest the possibility that something occurred to make the application of the existing theory of a resurrection plausible in terms of actual fact. But it would not affect the case to suppose that the whole story was legendary, because there can be no

doubt that, at one stage of the development of Christianity, it was believed, and it does not matter in what form it was believed to have been a fact. It was the belief in the real or alleged fact that determined the development of the Christian doctrine, and not the actual occurrence of the event as described, though it might be claimed with some show of reason that such a story would not likely take such a hold of men at the time unless something unusual had actually occurred to give an explanation of the genesis of the story. But with that we have nothing to do, as the influence of the doctrine depends upon its belief and not on the authenticity of the incidents. But the later we place the origin of the story which was believed, the more probable it is that it represents a misinterpretation of what actually occurred, and where the materialistic theory of the "soul" was not known or was forgotten, the more likely was the doctrine of the resurrection to take the form of application to the ordinary physical body and to invite scepticism and opposition from the standpoint of both philosophy and ordinary experience. It required acquaintance with the real conceptions of philosophical materialism to detect the possible meaning of a story like the resurrection, but as common people were the vehicles of its preservation and communication it would easily undergo the modifications to which all second-hand narratives are exposed. This is apparent in the doctrine of St. Paul, who, understanding Epicureanism in some of its features at least, evidently had a theory of the "spiritual body" not wholly consonant with later theories of the bodily resurrection

I need not repeat at length how the fact of a resurrection, whether of the actual physical body or of the ethereal organism in the form of a veridical hallucination, and whether proved or believed, would necessarily affect the materialistic doctrine interpreted as a denial of personal survival after death. This is apparent on the face of it. But the conception of it is most interesting as an actual development of one side of materialism involving a conception of an ethereal organism that was a standing temptation to interpret unusual experiences in the direction of a belief the very contradictory of its intentions. But the moment that materialism changed its base and regarded consciousness as the function of the bodily organism, and not of a "spiritual" organism, this *ad hominem* argument against it would have no cogency, and the whole issue would then depend, as it came to do, upon the nature, the authenticity, and the accuracy of the story of the resurrection.

There were at least two general influences that diverted Christianity in the direction of an anti-materialistic philosophy for a solution of its problem, after being obliged to surrender the *ad hominem* appeal on

the consequences of the materialist's doctrine of a "spiritual body." The first was St. Paul's conception of Christianity as a part of a cosmic dispensation initiated and sustained for the personal salvation of man, and the second was the isolated and individual character of the alleged fact upon which so much was made to depend, together with its withdrawal beyond the boundaries of personal knowledge and verification. These two influences are combined in the necessity of reliance upon a personal Deity to fulfil the promises of a future life implanted in human instincts after the individual instance of its alleged proof had faded into the twilight of fable. As time passed on the difficulties of believing any story of a resurrection increased and it seemed too small a piece of evidence to support so large a doctrine, and hence the necessity of proving that the universe was created and sustained by a personal divinity with a view to the spiritual development and immortality of man. This result could not be trusted to the caprices of a mechanical system supposed by materialism to be dominated by chance. Any security that could be obtained for the beliefs in a personal providence would redound to the credibility of the belief that his creatures would hardly have ideals and duties that were not realizable in their incarnate existence, and in fact Kant makes this disparity between merit and duty an argument for immortality and the necessity of a cause to establish a relation of this kind between duty and happiness an argument for the existence of God. What could not be vindicated, therefore, by reliance upon a story which was so isolated as the resurrection, as understood, and which had lost its setting in the economy of things, had to be sought in the theistic doctrine of a personal God whose character would appear inconsistent if he permitted the annihilation of beings, his own creatures, whose moral ideals pointed to conditions which the present existence did not realize and where duty, without this hope, seemed to have such limitations that its validity might be questioned and its power inevitably weakened.

When Christian philosophy found it necessary to undertake a reconstruction of metaphysics in reply to materialism, as it was conceived in opposition to the existence of an immaterial soul and its survival of death, it had to arrange for a cosmological as well as a psychological problem. The assumptions which it developed in the completion of its task, extending over many centuries, and for meeting its emergencies, can be summed up in the following conceptions, as representing loans from the preëxisting systems of speculation. They are conceptions which we shall require to constantly keep in mind when estimating the efforts and accomplishments of mediæval thought.

(1) Christian philosophy accepted the Aristotelian conception of a "prime mover," giving it Plato's conception of a Demiourgos or creator of the cosmic order, that is, a doctrine of theism. (2) It accepted Plato's conception of the transient nature of matter, both sensible and supersensible, and with it the notion of creation as opposed to evolution and the eternity of matter. (3) It accepted the conception of individuality which was represented in the materialist's indivisible and indestructible atom. To what it borrowed it added the conception of the soul as an immaterial substance of which consciousness was a function or attribute, and its imperishable nature followed as a consequence of its distinction from the "phenomenal" character of matter and its own indivisible or indecomposable nature, where the theory did not make survival a result of grace. The "phenomenal" nature of the cosmos was admitted with Plato and the soul made a substance not subject to the vicissitudes of material changes in any form but only of separation from the body. The conception of it as immaterial and hence as superphysical rather than supersensible matter was a distinct break with the monism of Greek philosophy and initiated a dualism which completed itself in the philosophy of Descartes and tended to the conception and definition of the soul in terms of abstractions and negations of matter, because speculation constantly forgot the existence of the supersensible in the material world and undertook to make sense perception the measure of the material substance and abstraction of sense the criterion of the spiritual, resulting in the negation of all that is apparently real for the determination of the ideal or spiritual.

It was the biblical theory of creation, reasserted by St. Paul, that forced Christianity to undertake a cosmology. This view asserted that the "world" had a beginning in time and was at least in apparent contradiction with the materialistic doctrine of that period. Accepting with Aristotle, therefore, that all motion or change had a beginning and that matter was incapable of initiating its own motion, there was no trouble in seeking the cause of it and of the cosmic order in an immaterial power. Hence it was a short step to theism which simply added the Judaistic conception of a personal deity to the Aristotelian idea of *primum mobile* and which came in to explain the origin and development of the system which was to culminate in man's personal salvation and immortality. But Aristotle admitted the independent existence of matter and required his *primum mobile* only to initiate its motion and after that things went on pretty much as the materialists conceived it, except that the Aristotelian process of evolution was

more closely allied to metamorphosis than composition of atomic elements. As a more complete overthrow of materialism, whatever its mechanical principles might explain after the existence of matter had once been admitted, Christianity went further to declare that even elementary matter as well as the cosmic order or sensible world was a "creation" of the divine power. Atoms also had a beginning in time and might be destructible. The whole cosmic system, "phenomenal" and "noumenal," was conceived as a dependent reality, obedient to a personal intelligence of an immaterial or spiritual nature, so that in the final outcome there would be no difficulty in assigning consciousness in man a possible place not so easily proved on materialistic assumptions. Accepting this position philosophy had no ultimate dualism to contend with, while it excluded the possibility of ultimately explaining even mechanical "phenomena" independently of intelligence. But whatever consistency or conceivability this view may have, it has to run the gauntlet of the evidential problem and in Hume and Kant it reached a sceptical result.

The adoption of the atomic conception of individuality and of substance that is simple and indivisible was a concession to materialism, even though it made this substance ultimately dependent, in as much as this individuality served as a basis for the attachment of persistent qualities which might survive change and decomposition. It was qualified to apply an *ad hominem* argument in favor of the immortality of the soul by making it a simple substance. It is apparent here that the whole Platonic point of view was abandoned, except in so far as Plato admitted that the "soul" was simple. Plato was trying to secure immortality after he conceived the soul as a *mode* of reality, an activity of substance, and never reached the position by which he could make this tenable or easily conceivable. In his vacillation between pantheistic monism with a doctrine of metamorphosis and a doctrine of atomism he never brought himself clearly to recognize simple persistent substances with attributes remaining through change, though it is possible to say that the clarification of his conceptions leads to this result, and hence Christianity gained a logical advantage and a more intelligible point of view by supposing with the materialists and emphasizing the fact that certain qualities may persist through changes of composition in the elementary substances which served as the centers of reference for various "phenomena." It appropriated the Aristotelian and Epicurean conception of substance as the permanent base of "phenomena," but gave it the individuality of Epicurus so that it had a center of reference to which it could attach conscious-

ness or personality as an activity without implicating it in the vicissitudes of matter simple or compound. If Christian philosophy had conceived this unitary being, represented as mind and immaterial substance, as the subject of metamorphic changes or modal modifications, it might have gotten only the permanence of substance and not the persistence of its modes through changes of relation. But as in the case of consciousness the moral interest lay in the preservation of this functional activity, Christian philosophy abandoned the idea of metamorphosis for that of a substance with a fixed set of attributes, the notion of the materialists, and supposed that personality, once in existence, could persist through the changes effected by death, while it could allow for all sorts of incidental effects from composition. Here again there is no difficulty in the conception because it conforms to every requirement of the materialistic theory in its representation, but however possible and consistent the doctrine may be it has to face the evidential criterion.

The purest form of this adoption of the materialistic conception of permanent reality is found in Tertullian, who undertook a curious defense of immortality by appropriating the atomic doctrine in favor of the soul. He so felt the difficulty of maintaining an immaterial basis for consciousness as a persistent function, probably influenced by the perplexities of the Platonic conception, that he simply abandoned all efforts to dislodge materialism by supposing a "spiritual" substratum and boldly asserted that the soul had to be material in order to be immortal. He accepted the indestructibility of matter, at least subject to the divine will, in the atomic form and appropriated the conception to assume that the soul was a material atom and so imperishable. He had no difficulty with the past, as the reincarnationist must have, because he conceived all matter as created. It was its simplicity that guaranteed it future permanence when once created, even though in the final analysis this persistence might be conditioned as dependent upon the will of the creator. But the conception of the soul as a material atom, whatever we may think of it as an alleged fact, in order to secure its persistence after death was an *ad hominem* argument of an irresistible kind. Its weakness, however, lay in the character of all philosophic arguments at that time. It was only an *a priori* possibility deducible from assumptions which themselves might be brought into court and there was no way of proving by observation or experiment that the substratum of consciousness was a material atom. The test for this would be nothing more or less than an adequate pair of scales applied before and after death, with allowance for various diffi-

culties which modern science would quickly show were fatal against anything conclusive. Moreover the cogency of his claim for an atomic subject for consciousness depended upon the assumption of such a difference between mental and physical functions that the demand for an immaterial subject would be as rational as that for a material atom. But the evidence for both was lacking, while the tendency of speculation was toward an antithesis between mind and matter in the attempt to explain the "phenomena" of consciousness, and however effective Tertullian's position might prove in an *a priori* argument, the natural and logical tendency of most minds is to refute materialism by denying its major premise, that is, by disputing the possibility that consciousness can in any way be a function of matter, whether simple or compound. This was the course taken by philosophical development and it terminated in the dualism of Descartes who worked out the mediæval antithesis into its clearest expression.

I do not care anything about the motives of Cartesianism nor about its details. The point of interest to our present problem is the manner in which the original antithesis between the material and the spiritual worked itself out into radical definition. This Descartes indicated by maintaining that the matter was qualified by extension as its essential property without any consciousness and mind as qualified by consciousness as its essential function without any extension. Matter was extended; mind was not extended, but spaceless. The opposition between them was so radical that a causal relation between their functions has seemed impossible and the consequence was the intellectual movement which terminated in materialism, on the one hand, and idealism, on the other. Both endeavored to escape the dualism of Descartes. Materialism either accepted the extension of matter and made consciousness one of its functions or, as in Spinoza, made extension and consciousness non-convertible functions of matter. Idealism ended either in denying extension of both matter and mind, as in Leibnitz, or in making space a "form of perception" without saying whether it was to be conceived as a property of either matter or mind, a curious and mongrel evasion of the problem which the ordinary human thinker must conceive as denying extension to matter and affirming it of mind! This, of course, was not the intention of the system, but the attempt to conceive what it means leads to something very like this description of it and represents something actually very close to it, unless the objectivity of space be admitted in some sense of the term. But whatever it meant, the system was simply one of those whose speculations were determined by the impor-

tance which Cartesianism gave to extension as a determinant factor in metaphysics.

In his treatment of the problem Descartes assumed as a foregone conclusion that consciousness must have a different subject from material "phenomena." This conception was so ingrained in the course and results of scholastic thought, and perhaps so articulated with the moral and religious prejudices or interests of the time, that he either saw no reason to question the assumption or no safety in disputing it, if he did see it. However this may have been he did not dispute it, but accepted the real or apparent distinction between mental and physical "phenomena," whether from motives of prudence or philosophic necessity, as demanding a corresponding distinction between their grounds or subjects. But he stated this distinction between them in such terms, excluding extension from mind and consciousness from matter, that the philosophers interpreted it as implying the impossibility of any causal relation between them while Descartes admitted that this relation was a fact. The attempt to explain *how* they could be related or influence each other, as they were defined, resulted either in the denial of Cartesian dualism or in the denial of a causal nexus between them. The former was the position of materialism and the latter the position of Leibnitzian idealism, with variations between monism and pluralism in other systems. But in all of them there was the consciousness of the real or apparent necessity for either explaining or denying a supposed causal nexus between mental and physical events.

But it seems to the present writer that there was a fundamental misconception at the basis of this development toward the idealistic denial of a causal relation between matter and mind in order to solve the problem, and this misconception was the result of ignoring the proper issue. The philosophers involved in this development presupposed that there were adequate reasons for separating the subject of consciousness from matter in some form. Their first problem should have been to ascertain whether there were any reasons in fact to assert a subject for mental states that was other than the physical organism, assuming, of course, that matter was an accepted fact. It was possible to attack the question as did Berkeley and to determine whether there was any material existence over against the assumed existence of mind. But the existence of matter, whether created or uncreated, was so thoroughly established in human conviction at the time of Descartes and his followers that the application of doubt to it would have received no general attention and would not even have seemed plausible

to the philosophers themselves, so that the problem which presented itself as the most natural was the existence and nature of the soul, that of matter not being questioned and the issue being whether matter was or was not adequate to the explanation of consciousness. We must remember too that even Berkeley made concessions to what the term "matter" actually stood for, a circumstance which indicates that his idealism, like his belief in the miraculous virtues of tar water, had to be taken *cum grano salis*.

It will be said, of course, that the philosopher did approach this primary problem and gave his reasons in fact for asserting a subject for consciousness other than the organism, and that this "reason in fact" was the difference between mental and physical "phenomena." This defence, at least in respect to method, is unquestionably correct, though the argument along this line of investigation was not explicitly developed into a scientific issue which was a question of evidence. It was only when pressed to justify the assumption of distinct subjects that the argument would take the form of the distinction between mental and physical events, while the real problem, as then conceived, was not so much the separateness of the subjects of mental and physical "phenomena" as it was their *nature*, after their individuality was admitted. There were two distinct problems before the philosopher. The first was the question whether consciousness was a function of the organism, that is, whether it had a subject other than the brain, no matter what that subject was, and the second problem was to determine what the *nature* of that assumed separate subject was. The first was presumably solved by the appeal to the differences between mental and physical "phenomena." But the difficulty of basing any argument for a distinction of subjects upon the difference between the nature of the "phenomena" is twofold: first, our ignorance as to the absoluteness of the distinction, and second, the fact that a unity of subject is quite compatible with very great differences of attributes. The latter position is illustrated by all physical substances and, on a large philosophic scale, by the system of Spinoza who appears to have had no difficulty in supposing that both extension and consciousness could be attributes of the same subject. The former is illustrated by the limitations of dogmatic introspection in such matters as physical sound and color. This difficulty was not discussed by the Cartesians and was probably not even appreciated. They simply assumed that it did not exist and simply relied upon the accepted difference between mental and physical events to prove both the *existence* and the *nature* of a distinct subject for consciousness, though practi-

cally unconscious of the first of these problems as distinct from the second, since they were chiefly interested in the nature of mind and matter. The reason for this was in the traditional conceptions of philosophical and theological thought. The time had passed when the most important issue was whether consciousness could be a function of the organism or not. It was not enough to secure its immortality that consciousness should be proved to have another subject than the brain, as this conclusion would have sufficed to refute the older materialism or any materialism supposing the permanence of matter. But it was now necessary to prove that consciousness was the function, not only of something other than the organism, but also of something that was not matter. The reason for this necessity was the fact that Christianity had contended for the created and perishable nature of matter, so that, if we accepted the supposition that consciousness was an attribute of matter in any form whatever, whether simple or compound, we would be compelled to admit its liability to disappearance or annihilation. If the indestructibility of matter had been as clearly recognized and its real or apparent significance as keenly felt as in later times, the necessity for demanding an immaterial basis for the persistence of consciousness would not have seemed so imperative, since philosophy could either have returned to the position of Tertullian or have accepted something like that of Epicurus. But as long as it conceived matter, sensible and supersensible, as created and ephemeral it could only seek in the immaterial a basis for an immortality which it would not yield to scepticism. Hence it was the interest in obtaining and defining a reality for the subject of consciousness which could survive change that prompted Cartesian speculation to describe mind as it did, and to concentrate philosophy upon the problem of the nature of the soul rather than the question of its existence. This latter problem was rather ignored until the later materialists took it up. It was at bottom the question whether any conception could be obtained that would guarantee the possibility of survival of death, and as this could not be found in matter which had come to be conceived as created and perishable it had to be found in the immaterial, the definition of which had to exclude the material, as the Cartesians thought, to the extent of not permitting any participation in extension. The primary problem, however, which was not properly appreciated by the philosophers, was the existence of a subject other than the brain, and this is a question of *fact*, while the one attacked by them was secondary and is a question of *nature*, and the right to entertain it is dependent upon the adequate solution of the former. Of course, the philosophers

would contend that they had satisfactorily answered the first question, but they allowed themselves to be governed by the necessities of a merely traditional conception of matter in the definition of mind, and by the manner in which they discussed their dualism, carrying into the problem the conception of material rather than efficient causation. They thus created another and larger problem than ever, whose attempted solution led to a denial of their claims for the independent existence of mind! This is apparent in the result of the attempt to explain the admitted relation between mind and matter after the distinction of their nature was asserted. A causal relation or influence between them was admitted, but it appeared to be a question how this was possible between things so opposed to each other as extended matter and unextended mind, especially as the tendency at that time was to conceive the causal nexus as a constitutive and "material" one. The manner of solving the new problem defined very sharply the alternatives between which the philosopher apparently had to choose. He had apparently to decide between the separate existence of mind and a causal nexus between it and matter. The failure to show how this causal nexus was possible was taken to prove either that the Cartesian conception of mind was not tenable, or, if tenable, that the causal relation was not a fact.

It is possible to consider this conclusion as an inconsequence. There is no reason to undertake the explanation of such a causal relation except upon the assumed validity of the fact, and once granted as a fact, the failure to show *how* this relation is possible does not contradict the fact, but only leaves that problem unsolved. It is not explanation that validates a fact, but evidence. Explanation follows the admission of a fact and does not precede it, and is not legitimate until the fact is accepted. Descartes supposed that he had evidence of the fact. But scholasticism had so saturated the human mind with the assumption that explanation is so necessary to the acceptance of facts and that failure at explanation discredits the premises, that an unexplained causal relation between mind and matter was taken as tantamount to a denial of the fact of that relation or to an implication of the truth of materialism. To me the first problem is to prove or disprove the fact of a causal nexus between "phenomena," or mind and matter, and to explain it afterward, and not to condition the fact or existence of the relation upon the possibility or success of making it intelligible in terms of a given assumption. Making it intelligible in such a manner may explain its *nature* and make it unnecessary to dispute its credibility, but it does not determine that it is a fact. Hence the

failure to explain an alleged circumstance by reference to the known or assumed does not disprove its claim to be a fact, though it may justify some suspense of judgment, out of respect to the fact that unity and consistency will enable us to escape contradiction even when they are not the evidence of truth.

But if the case is as I have indicated, why did the course of philosophy take the direction that it assumed and why did it seem impossible to suppose a causal relation between mind and matter on the assumption of Descartes regarding the nature of the two subjects? If the nature of mind and matter as facts is one thing and the causal relation between them as a fact is another, the evidence in each case being different, how can they contradict and why should philosophy have argued as if they did contradict? It is a fact that men have generally thought that either Cartesian dualism or the causal relation between mind and matter had to be surrendered. But if both are facts determined by independent evidence, why should men think so? The answer to this question is simple enough. This answer is the fact that it was not the antithesis or dualism between mind and matter, the assumed inextension of mind and extension of matter, that gave the trouble, but it was the assumption that the causal relation had to be a *material* one, if admitted at all, and this conceived it as an application of the principle of the transmission of influence from subject to subject, as causality was interpreted in the "mechanical" world, involving the principle of identity, while the definition of the two realities involved the principle of difference or contradiction in the most definite form, far more radical than the ancient distinction between the sensible and supersensible worlds of matter. This conception of causality was that of a "mechanical" *influxus physicus*, as proved by the way that Leibnitz and others understood it, and which was conceived in terms of motion or the translation of force. This implied extension, while the very definition of mind excluded extension from it, so that a relation of material causation was rendered impossible. Hence it was not the extended nature of matter and the unextended nature of mind that created the difficulty, but the assumption of extension in the conception of the causal nexus accepted as a fact, that contradicted the supposed nature of one of the subjects. If the conception of efficient or occasional causality had been developed, free from the paradoxes of "preëstablished harmony" the conception of dualism, as representing both extended and unextended realities, would have offered no insuperable logical difficulties, whatever might have been the result of investigation as to the facts. The contradiction was between the

assumptions regarding the qualitative nature of the two subjects and the nature of the causal nexus, and not between the nature of the subjects and the fact that there was *some* kind of a causal relation.

I am, however, not defending dualism in this analysis of the problem: for I am indifferent to either its truth or falsity, because the conception is so elastic that it can be made either true or false according to definition and ought not to give the philosophers any more difficulties than atomic pluralism, which is little more than dualism multiplied. But with this remark against misunderstanding the motive and tendency of my argument, I may simply add the observation that the wide entertainment of a doctrine of dualism in some form, even among philosophers, requires explanation and apology quite as much as the philosophic tendency in some minds to regard it as inconceivable. But the position that the difficulty is not in the dualism *per se*, as a doctrine of difference between mind and matter, but in the assumption of a causal relation incompatible with its conception, while some rational and intelligible relation has to be admitted as a fact, if clear thinking is possible, is an apology for both sides, while the fact may suggest that the theory might be as much misunderstood by its critics as it has been misrepresented by its advocates. The first question is whether the nature of mental and physical "phenomena" is such as to require different subjects for them, together with the qualities which determined their nature as realities, and the next and independent question is whether there is any influential connection between them, and not whether that connection is of a kind to contradict the distinction which the facts require us to make between them. The conception of an efficient causal nexus between them is quite compatible with a difference of their nature and may be necessary to accept the unity of action with that difference which we actually observe.

This brings us to the theory of parallelism again, and the problem which it undertakes to solve or the conclusion which it endeavors to establish. We saw in discussing materialism (p. 391) that the "mechanical" conceptions of Descartes and his followers in the field of physical science tended to interpret the idea of causality in terms of the transmission of force or the principle of material as distinct from efficient causes, and that the final proof of the theory of the conservation of energy tended to place the Cartesian conception beyond dispute and to interpret "mechanical" causation in terms of qualitative identity between antecedent and consequent. We then showed that Leibnitz tried his doctrine of monadism with its denial of an *influxus physicus* and with its affirmation of preëstablished harmony against materi-

alism and its "mechanical" conceptions, and so gave rise to parallelism which has again been revived among philosophers as an argument against the materialistic theory in recent years. What parallelism tries to show is that consciousness and physical events are not convertible as the doctrine of the conservation of energy assumes when qualitatively interpreted. Its object is to show that they are so different in kind that we cannot conceive their transmutation into each other or any relations of material identity as materialism is supposed to require of this causal relation. It assumes that if this material causal relation is denied of them the materialistic theory must abandon its claim to explaining consciousness by a "mechanical" theory. We have granted that this argument is conclusive against materialism, if it is made definitively convertible with the idea of material causation or the absolute identity of mental and physical "phenomena," and that materialism would have to resort to the conception of efficient causation to escape refutation. I also called attention to the fact that the spiritualist, if he had accepted the materialist's position and principle of material causation, would have had a fatal *ad hominem* argument against his denial of the persistence of consciousness and in favor of at least the concomitance of consciousness with all physical "phenomena" and possibly the identity of physical and mental events, making the physical only the objective side of the mental. But instead of taking this position the spiritualist went off to parallelism to prove the difference between mental and physical on the assumption that he might thus defend the distinction of their subjects, when as a matter of fact the doctrine of the conservation, as interpreted, made it unnecessary to have different subjects in order to preserve identity through change. But the instinct for contradicting an opponent's conception of the case was too strong to permit the suggestion of a *non sequitur* in the materialist's deduction, and the argument took the form of insisting on the difference between the mental and physical as a ground for a distinction of subjects. The inconsequence of this position is perfectly clear. A difference in kind of qualities is not a decisive evidence of a difference of subjects, unless we assume that a simple subject can have only one attribute. If we assume Herbart's "real" as the true conception of ultimate reality, we should have a conception in which the presence of two different properties in the same apparent individual would have to be treated as evidence of two "reals" in the same space or time, and even physical scientists have occasionally maintained that true simplicity of atomic structure requires absolute singleness of the quality determining the subject.

But it is usual to suppose that a synthesis or complexus of qualities is consistent with simplicity of subject. This is unquestionably correct for sensible individuality and continuity within the limits of that individuality, and whether it is true or not for the supersensible is not a question discussed by the spiritualist. He virtually concedes that a simple subject may have a synthesis of qualities which may be different in kind and does not see that this concession deprives his parallelistic argument against materialism of its cogency. All that his parallelism can even profess to do is to refute the identity of mental and physical "phenomena" or the application of material causation to their relation, while the fact that qualitatively different attributes may inhere in the same subject defeats the inference which he wishes to have drawn in favor of the substantive separation between mind and matter. For if a complexus of differential qualities can inhere in the same subject what is to hinder the materialist, after correcting the conception of the conservation of energy to mean identity of quantity and not identity of quality in change, from still adhering to the contention that consciousness may inhere in matter side by side with other material qualities reducible, if you like, to modes of motion? If the non-convertible properties of extension, density, color, sonorousness, hardness, elasticity, etc., may inhere in the same subject there can be no reason to deny the simultaneous inhesion of consciousness in it, except the assumptions that all the properties of matter must be modes of motion and that consciousness is *not* a mode of motion. Both assumptions, however, are not proved and may not be provable. All that we know is that there is a difference between mental and physical "phenomena" as observed, not that this difference is the difference between motional and non-motional facts. The idealist is perfectly helpless here. In his doctrine that "all things are states of consciousness," or that "all things can be known only in terms of consciousness," if this language is to have any rational meaning whatever, he must contend that motion is a state of consciousness and so identify the mental and physical in kind and deprive himself of logical grounds of opposition to materialism. In fact, the strongest possible proof of the materialist's contention would be the theory of idealism identifying the mental and physical, so that idealism would either have to accept the materialist's conclusion against the persistence of consciousness or insist that its persistence is consistent with materialism. The identity between the mental and physical involved in the two theories can have no other outcome and opposition between them is securable only on the con-

dition that they divide on the question of survival after death while they maintain the identity of the mental and physical! Hence it is only the man who insists upon the validity of the two assumptions that material "phenomena" are all modes of motion and that mental "phenomena" are never this, that can consistently maintain the existence of an independent subject for mental states. The materialist, after the contention of Hobbes and others that all physical "phenomena" were reducible to modes of motion, had applied the principle of material causation or the transmission of energy to explain mental "phenomena" and so had to imply that they were consequently modes of motion. Against this position parallelism might well contend if it succeeded in showing that mental and physical "phenomena" were not interconvertible. But there are two conceptions of materialism, either of which parallelism does not effectively meet. The first is that which assumes that the causal nexus between the mental and physical is efficient and not necessarily or wholly material. The second is that which insists upon our introspective inability to determine *a priori* the nature of consciousness beyond the most superficial differences between it and physical "phenomena" in respect of their relation to motion. In the first of these positions materialism does not have to decide anything one way or the other about the nature of consciousness, whether it is or is not a mode of motion. All that it need maintain is that motion or any other material action as an occasioning cause can elicit or instigate the occurrence of consciousness which may be treated as a function of the organism in which it occurs, just as physical activities may instigate the occurrence of other and non-identical activities in independent material subjects without being convertible with them, especially in the light of the internal "forces" which, in chemistry, are supposed to account for qualitative manifestations that are not transmutations of the inciting agent. Thus I may light a candle or set off a powder magazine by a match and the effect is not the same in both cases, nor is it the mere transmission or transmutation of the energy in the match. The subject in which the event occurs and the "force" that it contributes to the effect is an important factor in the result, so that, to carry out the analogy, the occasioning influence of an external physical cause may instigate the occurrence of consciousness in the organism without constituting it either qualitatively or quantitatively, and the organism might be the agent determining the nature of the qualitative reaction. This view is not answered by parallelism. Neither is the second conception of materialism any better refuted. All that introspection can

do is to affirm that there is a difference between the mental and physical in their sensible forms and not that they are ultimately opposed in nature. The assumption of the materialist, when he conceives all physical "phenomena" to be modes of motion, is that this identity is supersensible. He concedes the apparent differences. He may be wrong in his assumption of this reduction. With that I have nothing to do, because any disposition to question it must rob the parallelist of his weapon against materialism, since the assumption that absolute differences of qualities in a material subject will logically defeat the argument for a separate subject for consciousness. Hence the parallelist must accept the materialist's terms in regard to the identity at the basis of physical qualities, in order to gain a fulcrum of any kind against the assumption that consciousness is a mode of motion, while this concession simply opens the way for the materialist to contend that the apparent distinction between the mental and physical is not real and that their identity ultimately is quite as consistent as the ultimate identity of different material qualities, which the parallelist has to concede in order to secure his own premises. But when these are secured he may be confronted with the first conception of materialism which can concede that consciousness is not a mode of motion and yet maintain that it is the resultant of composition and internal "forces" which are not the transmuted effect of stimulus.

There are two things to be remembered here, though they have their logical value and cogency determined by their relation to existing assumptions in the atomic theory of matter. The present general conception of the atomic theory is that the elements are qualitatively different and yet may be the subjects of different qualities. That is to say, it is assumed that simplicity of substance is not incompatible with complexity of attributes. If it were assumed that simplicity of subject required corresponding simplicity, or singleness of qualities, the two things to which attention is to be called would be subject to qualification. But as the case of atomic conceptions now stands they represent fundamental postulates which determine the manner of stating the two criteria of judgment on the question of single and plural realities. The first thing, however, to be remembered is that a general diversity in kind of qualities is not evidence of a plurality of subjects, and the second is that a general similarity in kind of qualities is not evidence of a unity of subject. Now it is to be noticed that this latter statement is admitted to be a truism, while the former does not appear to be so truistic, although it actually is such in the light of present atomic conceptions. The simple reason for this is that in the

very conception of "similarity" (*cf.* table of categories, p. 127) plurality of subjects is involved and no one would think of supposing that a unity or singleness of subject was possible, where plurality was the condition of "similarity" and did not imply mathematical identity. But the habit of relying upon differences in physical science for the suggestion of complexity and therefore of other than the most apparent subject of the phenomenon leads to the tacit assumption that differences imply plurality of subjects. But the admission that an elementary unit or atom may be the subject of a variety of properties in no special respect similar to each other deprives the fact of difference of its evidential power in favor of plural subjects. Hence plurality of centers of reference must be determined by some other criterion. That is to say, in the present status of assumptions characterizing the atomic doctrine, or any doctrine of elements, plurality of realities has first to be established in order to make the application of diversity of qualities even suggestive of plural subjects, and until that plurality has been established diversity of qualities is quite consistent with unity of subject. The evidence of plurality lies, not in diversity of qualities, but in *individuality*, or independent existence in space and time. The only conception that can dispute this contention is that of Herbart and of such atomists as may identify simplicity of substance with simplicity or singleness of qualities. On that assumption alone can the plurality of subjects be proved by difference of qualities. From this point of view materialism would be forced to choose between making all atoms qualitatively alike and modal differences the effects of composition, and making them qualitatively different to the extent of the qualitative differences of "phenomena." Now recently Sir Oliver Lodge, Sir William Crookes and others have declared for the possibility of the former alternative in which all differences in "knowledge" and "reality" are modal and not evidence of different kinds of subjects. That is to say, they declare for the absolute identity in kind of the atoms. The law of Mendelejeff, and other "phenomena" in the classification of the elements, seem to favor the same view, because they point to the application of evolution to the very elements and suggest this evolution from a single form of energy. But it does not matter whether this ultimate is one or many, whether our view be pluralistic or monistic (uno-monistic), as long as the physicist maintains that such elements, relative or absolute, as we assume to the plural, are alike in kind instead of being qualitatively different. All qualitative differences would have to be explained as the resultants of composition. That is clear. We have seen, however, that on either

the monistic or pluralistic view the persistence of a particular mode or "phenomenon" will depend on the persistence of the compound, assuming the pluralistic position, or on the absence of change or metamorphosis, on the monistic view. The circumstance that change is a recognized fact for both points of view shuts out spiritualism from adopting either of them for the defence of the persistence of consciousness, unless it could qualify metamorphosis in some mysterious way to suit its requirements, and without this persistence it does not require to controvert the materialistic theory for any practical purposes. On the other hand, if spiritualism should drive atomic materialism into the position that independent subjects must be coextensive with the differential qualities of things, it would be obliged to adopt a qualitative difference between the atoms which would be far greater than our present atomic theory finds necessary in limiting it to the seventy or more elements and make each atom the subject of a single quality, whether similar or diverse from others. This would necessitate the adoption of a separate subject for each species of mental state showing radically differential features, and the spiritualist would be no better off than before, as the consciousness representing his personality would have been dissolved into its elements and have no identity of the kind found in the bodily existence, while he would have to face the problem of evolution and metamorphosis for each individual subject in the result, even when he assumed that consciousness was simple and not analyzable into specific elements constituting a class or collective complex. It will not help to say that the fundamental difference is between the "phenomena" of motion and those of consciousness, assuming that the subordinate species of each genus of mental state, intellection, emotion, and volition, can be reduced to one conferential function; for I do not see that the distinction between intellect, feeling, and will, or between the several types of mental states in intellection, sensation, perception and reasoning, involves any more unity of kind than the several functions of matter. That is, I do not see that the distinction between consciousness and motion is any greater than that between density and color, both of which are assumed to be modes of motion, and on the conception of atomism under consideration, are assumed to justify a separation of subjects for each differential quality. If this suggestion of qualitatively different atoms, caused by the differences of attributes in matter in spite of their classification under motion, be either necessary or possible, equal specific differences for mental "phenomena" must point to the same conclusion, and the assumption of separate simple subjects for each functional aspect of the organic

complex called consciousness would leave the spiritualist without any advantage, even on the conception of Tertullian, as the persistence of each individual subject would not preserve personal identity, unless this persistence took the form of the "spiritual body," when the question would be whether this persisted or not. If it did not the case would stand as it does with materialism. Besides the conception that all qualitative differences, postulated to secure a major premise for the independence of a mental subject and to deprive materialism of its appeal to resultants of composition for the explanation of "phenomena," require corresponding differences or individuality of subjects, forbids the unification of differences in the material world as well as in the mental, so that we should have to place motion on a par with other qualities of matter and as a distinct function of an individual type of atoms, so that some atoms would have no motion whatever. This would be a *reductio ad absurdum* of both atomism and materialism. On the other hand, the admission that such radical differences as density and color, or affinity and taste, were inhesive qualities of the same subject would at least suggest a doubt about the right to dogmatize on the ultimate differences between consciousness and motion.

But when the controversy between materialism and spiritualism is reduced to the question which I have just been discussing, namely, whether it is possible to conceive that consciousness is a mode of motion, we should discover either that the problem is insoluble or that materialism would prove itself elastic enough to change its contention and take some other assumption for its base. We must not forget that the whole force of the demand for a mental subject other than the organism, as made by parallelism, depends wholly upon the assumptions that *all* "phenomena" of matter are modes of motion, a position often taken by materialism, as in Hobbes, and that consciousness is not a mode of motion, the position taken by parallelism. The first of these assumptions is conceded by the parallelist, if only for the sake of argument, and the second assumption affirmed in order to escape materialism which assumes that consciousness is a mode of motion. But there is no more evidence for the materialist's assumption than there is for the parallelist's. Both can be disputed, as is shown by the various positions and theories concerning the simplicity or complexity of atoms, where the possibility of classifying qualities does not affect the opinions of speculators and where difference rather than identity controls the intellectual tendency. Besides there is no rigid necessity for materialism to suppose that *all* "phenomena" of matter are modes of motion. It had differences to account for in some way even when supposing that

all material "phenomena" are reducible to motion of some kind, and it cannot treat these differences as "motion" which is the conferentia, but as either a concomitant fact or as something attached to "motion," which is the identical element in the "phenomenon." Consequently, we have attached to its assumption of unity a distinction that prevents this unity from being universal or absolute. This once recognized simply leads to the result that there are functions of physical realities that are not modes of motions, though we admit that all which produce effects may be modes of motion, and if once the admission of functions that are not motion be admitted there would be no difficulty in supposing consciousness to be among them. Parallelism would then be reduced to the choice between supposing that the qualitative differences of "phenomena" indicated required the existence of atoms coextensive with the differences associated with motion in a complex organism, to save the persistence of consciousness, and supposing that similar differences between mental states demand equally different subjects, an assumption that would require us to maintain the integrity of a "spiritual" organism in order to sustain the unity and multiplicity of consciousness as we know it. How he would sustain the integrity of such an organism any more than he can that of the material organism no one can see. If he could insist that consciousness was an absolutely simple thing, a view clear enough in its intension or abstract qualitative import, only one indivisible atom would be required to support it. But the term denotes a whole genus of specific states in the extensive or concrete quantitative import and would have to be treated as similar terms in the conception of material "phenomena" have to be treated. But grant that consciousness is simple and not a generic concept, with differential associations that might be used to demand the existence of Herbart's "reals" for each difference, the case would not be altered, since the reducibility of differential qualities in material "phenomena" to modes of motion is supposably compatible with very radical apparent differences that might admit the same reduction of consciousness, as the motion which unifies the sensible differences in the material world is quite as supersensible a thing to conception or imagination as consciousness can be. Moreover, if materialism were pushed by the logic of the case to abandon its assumption that *all* "phenomena" of matter from the very nature of the case must be modes of motion, a position which has all along been purely *a priori* and without evidence, as a condition of denying the persistence of consciousness after death, it would be found quite equal to the emergency, as philosophic theories are capable of

almost anything for the sake of maintaining the consistency of their traditional phraseology. It is easy to shift one's position and to maintain the same phrases without the discovery of our conversion. *Plus il change plus il est la meme chose* is a maxim that well expresses many of the intellectual movements in the history of philosophy. The success of parallelism depends upon accepting the materialist's assumption that all physical "phenomena" are modes of motion and denying this reduction of consciousness, while the materialist might at any time have the courage to give up his unnecessary assumption and leave the whole *ad rem* argument to the parallelist whose duty it would be to prove both assumptions as a condition of having any premise to begin with against the extension of materialism to explain all differential "phenomena" without handicapping itself with their reduction to the modes of motion, but simply assuming that it has differences to account for in any case.

I have gone thus into the analysis and discussion of parallelism and the ramifications of materialistic controversy and theory because parallelism has been the last resort and defence of the spiritualistic view in recent years, and because I regard it as wholly inadequate and irrelevant to the problem. It obtains its whole force from its *a priori* assumptions and its *ad hominem* argument, both of which are liable to overthrow at any time, the first by the demand for evidence which has not been and cannot be furnished and the second by the materialist's abandonment of his major premise and the adoption of another with the same conclusion as before. Hence I do not regard parallelism as an adequate defence of spiritualism in any form. It is no doubt quite true that, if mind and matter are different kinds of substance or different kinds of subjects, as they would have to be in order to justify the use of two terms assumed not to be synonymous in any sense, their qualities would be different. But the fact that qualities are different from each other is not a conclusive evidence of a difference of subjects, and we might show as much as we please that physical "phenomena" were not convertible with the mental, unless we at the same time showed a complete interconvertibility of physical "phenomena" with each other there would be nothing to prevent materialism from denying the universality of material conversion and extending its principle to the relation between the mental and physical, making them both functions of the same subject without reciprocal or other convertibility. The existence of non-convertible "phenomena" in the material world, representing qualitative changes not explained by the conservation of energy, which, when properly defined, applies only to quantitative

identity in change, and the compatibility of this non-convertibility of attributes with the unity and identity of subject, make it equally *possible* that mental events might be functions of the organism without contradicting the conservation of energy, and in this case parallelism would have no claims against materialism. The possibilities being equal for and against a plurality of subjects there is no other course open than to endeavor to solve the problem by ascertaining whether it is a *fact* that consciousness exists independently of the bodily organism, as the attempt to decide it by determining its *nature* only results in *a priori* speculations which are as good on one side as on the other, and being mutually opposed simply nullify each other.

I am not disputing the natural impressiveness of the appeal to the difference between mental and physical "phenomena," as we know them, for evidence of plural or dual subjects. I am only disputing the right to depend upon it as in any way conclusive or to connect it with the denial of material causality between the mental and physical as the sole source of reliance for its conclusion when the supposition of efficient causal nexus between them has not been met and which is all that materialism needs for its vindication. It is the possibility of this last conception, that of efficient causes, and their connection with the influence of internal action of the organism which modern science conceives very differently from antiquity, that opens a way for the materialistic theory which parallelism cannot meet. It simply accepts this parallelism and converts it into a defence of materialism. We have the whole field of chemistry and physiology and what they have established to deal with in the problem. The marvelous metamorphoses of matter exhibited by chemistry illustrating the appearance of new qualities due to composition, or even due only to variations of conditions without composition, as in allotropism, and without new elements in a compound, as in isomerism, or metals in liquid air and the equally marvelous functions of a physiological organism which are not consciousness within the accepted meaning of that term,—all these show that we have before us a problem quite different from that of early Christianity. The traditional relation between the "soul" and the body was that of a tenant and was as old as Plato, and was even that of Epicurus and the materialists. This relation was conceived as a "mechanical" relation, according to the terms of chemical usage, one that would not involve any change of character or metamorphosis either in the proximity of another element or in the separation from it. With such an artificial conception before it, the most natural tendency of the human mind would be to determine a difference of subjects by

a difference of "phenomena" associated in the same collective whole, especially if any special moral or religious ideas and hopes were interested in the result. But the moment that chemistry and physiology came in with their conception of an *organic* as distinct from that of a *collective* whole, a view much less nearly allied to the old "mechanical" composition of the ancient materialists, which was apparently insufficient to explain all the "phenomena," the case was altered. In the entire organic world of living beings and the inorganic world of chemical compounds, science has found a system of metamorphoses due to chemical laws that exhibit almost any capacity to exercise functions or manifest attributes not found in the elements. This is a conception that is wholly independent of the doctrine of the conservation of energy, because the facts represent qualitative changes for which there is no pretense of explanation by that doctrine. It is not thought for one moment that material causation applies to these qualitative modifications of matter, and the limitations which the fact imposes upon the theory of conservation confine it to the quantitative identity of the "mechanical" forces and qualitative or metamorphic changes remain outside its purview and action, involving conceptions that no amount of refutation directed against material causation can reach. Now parallelism cannot pretend to meet the objections created by this conception of causal change, involving as it does the idea of external efficient action and internal reaction or metamorphosis. All that it could question was the alleged material identity between mental and physical "phenomena." It is true that, as already admitted, this would be an overthrow of the "mechanical" philosophy which affirmed that identity, but only in so far as that philosophy was made convertible with material causation. Since materialism, however, in its last analysis does not depend wholly upon a material causal nexus between mental and physical events, the spiritualist has to meet the new conception which is founded upon qualitative metamorphosis and which is presumably not the result of transmission or conservation. This new position assumes that consciousness might as easily be an incident or resultant, "epiphenomenon," of composition as any other qualitative modification, especially if materialism should abandon the reduction of physical "phenomena" to modes of motion and suppose that matter is capable of functions not conceived as motion in any form.

Parallelism thus fails to achieve its desired victory simply because materialism depends upon more than one assumption. As has already been remarked when discussing materialism (p. 402), the proper

course of parallelism was not to have denied the materialist's application of "mechanical" or material causation, but to have pressed its *ad hominem* value for logical deductions which were just the contrary of what the materialist supposed, instead of conceding an assumption about the reducibility of all physical "phenomena" to modes of motion which ought never to have been granted and instead of accepting responsibility for an *ad rem* argument to prove that consciousness was not such a mode, a negative proposition which can never be proved. In other words the parallelist ought to have exposed the contradiction between the materialist's principle and his conclusion, the first being different from and the second being the same as the old materialism. The metamorphosis of the old materialism having been abandoned in the conception of the conservation of energy the same conclusion should not have been drawn. The parallelist should have accepted the challenge which the conservation of energy presented and instead of trying to limit it he should have pressed its necessary consequences, applying it with the universality which was claimed for it and thus insisted that the qualitative changes involved in the process of evolution involved no loss of identity whatever on the theory, and hence that consciousness was as much an element of the antecedent as the antecedent, motion, was an element of consciousness. The assumption of material causation with its implication of identity between the two terms of the series would have obliged the materialist to admit in the antecedent the same fact that he found in the consequent. There would have been absolutely no escape from this conclusion short of an abandonment of the qualitative interpretation of the conservation of energy. The materialist cannot apply material causation or identity to the relation between physical and mental "phenomena," or motion and consciousness, without accepting in it the full meaning of consciousness, the second term of the series, as well as the physical, the first term, that is, without admitting that the physical is as much of the nature of consciousness as the mental is of the nature of motion. The last term in the series of evolution, on the theory of conservation, has at least as much significance as the first and actually must be said to have been contained in it, so that the materialist cannot admit a qualitative difference of any kind between the terms of this series without giving up the universality of his explanatory principle. He cannot, on the theory of conservation interpreted as implying qualitative identity between the antecedent and consequent, exclude consciousness from motion and introduce it as a new moment in the series. He must make as much of consciousness as motion and treat their identity as his principle re-

quires, instead of implying their identity in one breath and denying it in another.

But when materialism was pressed with the difficulties of its doctrine its advocates frankly limited its application to the *quantitative* identity of antecedent and consequent, and admitted that it did not explain *qualitative* change or imply qualitative identity between the terms of the series causally related. Parallelism is thus eviscerated of its entire cogency. As soon as this concession was made and materialism based upon the possibility of the qualitative changes to internal "forces" in composition, it was not refutable by any denial of the universality of the conservation of energy or material causation. The parallelist had taken precisely the course opposite to that calculated to defend the theory he was opposing. It was simply because the conservation of energy did not apply qualitatively to antecedent and consequent that consciousness might be a function of the physical organism as the subject in which alone it occurred, at least in so far as the evidence was concerned. If it had been merely the transferred "phenomenon" of the external agent, retaining its identity in its transitions, it would require no identical subject for its own nature and persistence, but would be an eternal mode of action without regard to a change of subjects through which it was transmitted. A doctrine of reincarnation might be conceivable on this assumption, though it might be unlike the systems actually adopted. Of course this transmission from subject to subject would imply an eternal past for the individual consciousness and so would be confronted with the fact that there is no mnemonic unity or connection between consequent and antecedent, a fact which ought not to exist on the supposition of qualitative identity and which actually disproves that identity, reinstating the old problem of qualitative change and admitting no other type of identity and persistence than Plato's transmigration or reincarnation with metempsychosis, a conclusion which abandons both the qualitative conservation of energy and the permanence of personal identity.

The real force and meaning of the doctrine of the conservation of energy, whether qualitatively or quantitatively interpreted, was due to its controversion of the theory of *creation* applied to matter and motion, and not to its controversion of either the existence or the persistence of mind other than the organism. I have just indicated that the logical consequenee of a thoroughgoing doctrine of conservation results in the affirmation of an eternal consciousness in the past as well as future, but that, apparently agreeable as this might seem to the spiritualist's desire to protect the persistence of consciousness, it was in conflict with the

fact that there was no mnemonic connection between the past and present and no promise of any between the present and future, so that what the spiritualist might gain by an *ad hominem* argument with the materialist he lost by consideration of the facts and simply created an issue which both parties had to face in the consideration of a doctrine that did not meet the demand made upon it. What the parallelist ought to have seen was that the materialist's theory of the conservation of energy controverted the creation of matter and motion without necessarily controverting the persistence of consciousness which followed as a necessary consequence of the doctrine. All that the facts would prove was the inconsistency of this conclusion with them and the error of the materialist's assumption about material causation, nullifying the universality of his theory of conservation and simply opening the way for scepticism regarding the persistence of consciousness. The business of the parallelist was to refute materialism by its consequences, not by a denial of its premises. The spiritualist's problem is the persistence of consciousness without regard to the question of creation, and he has the doctrine of inertia in his favor, this doctrine being one form of conservation. The doctrine of inertia is that a body remains in its present condition whether of motion or rest, unless exposed to external interference. There is no necessity on this assumption of an eternal past in order to secure immortality, but only of a present existence and assurance that there is nothing to interfere with the continuance of it. The authors of the "*Unseen Universe*" maintained that what had a beginning must necessarily have an end, but this is flatly in contradiction with their doctrine of inertia which does not deny a beginning but admits the possibility of a permanence after a beginning, if there is no external interference to prevent it. It avails nothing to say that there is always an external interference, because this is a question of fact and not necessity. It is simply a question of fact whether a cause interferes with the present order to discontinue it, so that spiritualism is independent of the fortunes of a theory of creation, which involves a beginning but not necessarily an end, unless the doctrine of inertia is abandoned. Its position had to be consistent with the fact that there is no mnemonic unity of consciousness with a past presupposed by the assumptions of the conservation of energy, and it had only to use the doctrine of inertia to prevent an absolute denial of its possibility in spite of creation, while it could also use the absence of this mnemonic unity with the past to controvert the implications of the materialist's doctrine of material causation, though he has no interest but this fact in controverting it. It was the extension of the idea of indestructibility to motion after it

had been proved of matter that gave the theory of conservation its meaning against the notion of creation. As long as science had proved only the indestructibility of matter, the way was open to maintain, at least *a priori*, that motion had a beginning and in this way sustain the theistic origin of the "phenomenal" world, according to the Aristotelian conception of the case, in the orderly adjustment and collocation of cosmic realities. But the conservation of energy, even on its merely quantitative interpretation, at least appeared to contradict all conceptions of a creation, and if it assumed that qualitative changes were due to the action of internal "forces," it required no such creation as the theist maintained, as the quantity of energy was eternal and the qualitative changes assumed were not due to a foreign initial act with the supposition of inertia afterward to sustain an unchanged order. The materialist simply appropriated a kind of *creatio continua* which the theist should never have permitted him to assume. But having discovered the indestructibility of matter and motion, in some sense of the term, this result seemed to make the spiritualistic theory of absolute genesis, in its theistic assumptions, unnecessary, and as the materialistic theory was the only alternative, all the implications associated with it, both theistic and psychological, were assumed without reflection to follow. These implications were a purely "mechanical" interpretation of physical "phenomena" and the subordination of consciousness to the material organism as a function of it. In accepting this conclusion several things were forgotten: (1) that the only reason for assuming a permanent *immaterial* reality was the assumption that both the sensible and supersensible worlds of matter were transient; (2) that the reason for assuming an immaterial reality for the support of consciousness was the interest in preserving its persistence while matter was made a created and perishable thing; (3) that the doctrine of inertia made the persistence of consciousness consistent with the idea of creation or a beginning in time and rendered it unnecessary to postulate the eternity of the subject of consciousness in the past as a condition of its persistence in the future; (4) that when matter and motion were discovered, through the conservation of energy, to be permanent, there was no reason for insisting upon the existence of an immaterial mind or substance as a condition of the persistence of consciousness, and that either the position of Tertullian or that of the "spiritual body" afforded as good an *a priori* basis for the philosophic doctrine as the one of an immaterial psychical substance actually adopted. Spiritualism ought to have shown itself quite as elastic as its opponent has been, but when defeated at one point it has simply invented some new hypothesis worse than the first

and kept up a controversy when it might have deftly applied the logic of materialism to its own assumptions and either to have gotten spiritualistic conclusions within materialistic doctrines or to have shown that these consequences were incompatible with the facts, and thus to have thrown upon materialism the burden of proof instead of accepting this unenviable task itself.

But it was precisely because qualitative changes and modifications were not explained by the conservation of energy and the principle of identity at the basis of the indestructibility of matter and motion, that some theory of genesis, whether cosmic or psychological, was made logically possible and imperative. Whether a cosmic creation was probable or not, there were but two alternatives open in the case, after the necessary admission that personal identity had no past existence. They were: (1) the creation of the soul by God as something not self-existent, and (2) the explanation of consciousness as a function of organization. The first, with the assumption of inertia permitted a natural immortality, and the second would not permit it on any supposition but a theory of a physical resurrection. Both points of view made the result wholly contingent and provisional, either of them perfectly consistent with its annihilation, so that the last resort for survival after death was proof of the *fact*, and not its necessity from premises which were either extremely dubious or inconclusive, if true. That is to say, qualitative changes either from internal "forces" of the organism or from the immediate action of God offered suggestions of transiency either from necessity or the will of the creator, so that a natural immortality consonant with a theory of creation would have to prove a subject other than the brain to obtain its conclusion, a supernatural theory of a resurrection being required upon the materialistic assumption that consciousness was a function of the organism. And hence the only way to prove the existence of this independent subject would be to prove the *fact* that consciousness survived death, allowing the independence of its subject to go as a matter of consequence, and not to insist merely upon the "phenomenal" difference between mental and physical qualities, both of which might be the resultant of organization, whether natural or supernatural, and without qualitative identity in causal changes the transmission of consciousness intact to other subjects would not occur.

In another connection I shall raise the question whether the doctrine of the conservation is even quantitatively true in the sense of identity between the terms of the causal series, and whether the metaphysics of modern science can even maintain that even matter and

motion are indestructible. It will suffice here, however, keeping this sceptical question in abeyance or in reservation, to call attention to the fact that its advocates had to concede its incapacity for explaining qualitative changes, and then merely to suggest that its quantitative interpretation may be subject to revision and modification. It will be apparent, therefore, that if the whole theory of conservation be questionable the materialistic theory gains everything, provided that it remains by the theory of efficient causation and qualitative subjective changes and metamorphoses, except that it will be exposed to theistic attack, on the ground that inertia will admit no increase of energy or result in a "mechanical" system. But with no necessity for maintaining the conservation of energy either quantitatively or qualitatively and with an elastic interpretation of efficient causation it might limit the application of inertia to the "phenomena" of motion, while the theistic position would throw the whole responsibility for the outcome of the process of evolution upon the character and the plan of the creator.

It is especially noticeable, however, that parallelism has not exercised itself vigorously in behalf of a theistic solution of the problem. It was concerned with a "naturalistic" theory of it, and so based its argument upon a decision regarding the nature of consciousness and its relation to physical causation. The reason for taking this course is a simple one. Any other view required it to assume that consciousness was a function of the organism and perished with it, unless a theory of a physical resurrection could be maintained. This latter view involved the proof of a theistic theory of the cosmos, or at least of the organism, and the intervention of the creator to reproduce at some time after death the conditions which would render possible reoccurrence of the consciousness that has been suspended during the interval more or less prolonged. This view might recommend itself to an age which believed in "cycles" of existence repeating the past in all its details, but it could not be very acceptable to an age in which progress and evolution with their implication of increments of gain and advance were the primary assumptions. Hence there was no recourse but to try some view which made the survival of consciousness a natural consequence of the dissolution of the organism when its subject was spiritual and either not material or not a composite dissolvable organism. But I have indicated enough to show that I do not regard the method of parallelism as either adequate or legitimate for *proving* the existence of a mental subject other than the organism and that at best it can have but an *ad hominem* value for pressing assumptions which are not proved. It will require more evidence

than the *a priori* and introspective assertion that consciousness is neither a mode of motion nor possibly a resultant of organic composition to settle this problem. I grant that the differences which it observes and emphasizes between mental and physical "phenomena" are entitled to some weight in the formation of convictions, because the contrast between the two kinds of events is so great. I am not at all impressed with any such relation between them as the identity of their subject might seem to imply. If I were asked whether I believed that consciousness was a mode of motion I would say that I did not believe it and that I could not conceive how it should be. But I should also say that I did not know what it might be. I have to remind myself that it was not long ago in history when men thought that it was impossible that sound and color were subjective events and that it was absurd to suppose that, objectively considered, they were mere vibrations. But it has turned out that what was assumed to be absurd and false is a fact and not absurd at all, at least as now understood. Besides if the parallelist can conceive with the physicist that all physical "phenomena" are reducible to modes of motion, in spite of the radical differences between them, he might have some humility in regard to the nature of consciousness, after the experience of *a priori* and introspective opinion with sound and color. The sensible is transcended in one case and may be possible in the other, so that the sensible conception of consciousness as a "phenomenon" may not be the final one. Hence I do not see adequate reasons for being dogmatic in my interpretation of the nature of consciousness. I am even willing to concede that such differences as we actually observe may incline toward the belief of an independent subject for mental states or suggest it, but I dispute the supposition that they "prove" it in any cogent way until we know more about the nature of supersensible "phenomena," and consciousness in particular, than we do now.

If the problem is solvable at all; if there is any rational procedure that will determine the balance one way or the other, as against the more or less equal possibilities left in the discussions of philosophic materialism and spiritualism, it must come from science or scientific method in the adduction of new facts. This method, whether it have promise of success or not, would investigate to see if there were any evidence that consciousness actually did survive the dissolution of the organism or not, instead of speculating about the nature of it in dubious terms. It would apply to psychological "phenomena" the same method of isolation or difference which has been so fruitful and successful in the physical sciences and which is the ultimate source of

proof in that field. If it were once proved that consciousness actually did survive death we should know nothing more about its nature than we do now, and we might not even require to discuss the question whether it had a subject at all. If it actually survived the question whether it was a pure "phenomenon," or the function of an immaterial subject or some "spiritual body," material or immaterial, simple or complex, would be a problem relegated to the same limbo as the scholastic question about the number of angels on a needle point. The trouble with the usual philosophic method is that it does not recognize its own limitations. Sometimes it can do nothing more than examine the existing body of real or apparent "knowledge" without adding anything to it, and usually it can only establish the possibility of certain truths as against the dogmatic denial of the contrary. At no time has it been able to give any assurance on the fundamental problems which excite the most intense human interest, simply because it lacked the definite facts to prove its case. Its value I am not questioning, but only its claim to a certitude which it does not possess. Its limitations in the special problem before us are determined by the circumstance that the "phenomena," whose nature is supposed to require an independent subject, are always associated with a physical organism of a transient character and the limits of whose capacities for functional action have not been exactly determined. Hence the conclusion which it draws from the distinction between mental and physical events should be held with the reservations that are attached to all uncertain inductions, especially when there are no positive facts on the other side. "Proof" can be obtained only by isolating mental "phenomena" from this physical environment which must always be treated as a possible cause of them until thus eliminated from a determining influence on the production of consciousness.

The strength of the materialistic position is determined by two general considerations. The first is the general evidential situation, which is simply the fact that, not having attempted to deal with the residual "phenomena" that profess to isolate consciousness, science observes that mental and physical events in the individual have always been associated and never dissociated from the relation of coexistence and sequence. The second consideration is the explanatory one and consists of the mass of facts which show the indefinite possibilities of organic functions for explaining the genesis of "phenomena" associated with the body and terminating with it. These two considerations show that materialism conforms, at least provisionally and generally, to the two fundamental conditions of a theory, namely, that it should ex-

plain in terms of the known and that it should have evidence. I shall take up each of these in its order.

Men have a choice in the adoption of their convictions. They may rely upon personal experience or upon authority; that is, upon their own reason or upon the reason of others. In the last analysis these alternatives reduce themselves to the one, personal experience, as the individual has himself to decide what authority he shall accept and he does this on the basis of some kind of rational grounds weak or strong. The widest standard which any one can adopt and which will ultimately regulate cautious and reflective intelligence, when not determined by the general rationale of things, is that which reduces to the simple question of human experience and the uniform way in which convictions of an assured nature are accepted and established in every day life. This, briefly defined, is simply the method of association and dissociation. Things that are always associated and never dissociated are treated as necessarily connected. If I find in my experience that I always require a door or a window through which to pass as an entrance or exit of my house and that I cannot make this entrance or exit through the solid wall, I am careful to see that a usable house has doors and windows. When it comes to the problem of immortality or the existence of a soul other than the organism the question will be decided by the same principle that decides the most common beliefs. Thus if I believe that the clouds are a cause of rain it is because I have always seen them when it is raining and I have not seen rain when they or the proper condensible vapor are absent. If I found it raining at times when there were no condensible vapors suspended in the air, I should not be in haste to attribute the cause to clouds and appropriate thermal conditions. It is the uniform association of rain with condensible vapor that forms and confirms my convictions regarding the cause of it. The same general process can be illustrated by the relation between death and organic growth; by the relation between carbon and oxygen in ordinary combustion, and by hundreds of similar examples. They all illustrate the general formula that when B follows A and does not follow the absence of A, *ceteris paribus*, A is the cause of B, and B must disappear with the disappearance of A, provided that it is a function of A. If B is an organism brought into existence by A it may remain after A has disappeared, but if it is a modal act or "phenomenal" function of A, an attribute of it in its sensible form, then B must disappear with the disappearance of A. The redness of an apple disappears with the chemical decomposition of the organic whole. The luminosity of a light disappears with the

cessation of combustion. In all the affairs of life this criterion is the natural and necessary standard for rational belief, and our assurance in every case is proportioned to the degree of isolation that has been obtained for the cause and effect.

Now if this principle of conviction is applied to consciousness it means simply that we have always known consciousness in connection with a physical organism and, apart from the claims based upon a large mass of generally discredited "phenomena," we have never known consciousness to exist in isolation from the organism. Consequently there seems to be no natural inference in such a case but that consciousness is a function of the organism and perishable with it. The fact is so universal and without exception that argument on the other side seems impossible.

This hypothesis, so overwhelmingly supported by the evidential situation, is variously confirmed by the manifold facts of physiology which serve to supply the explanatory agents in the case. The various effects of lesion, of accident, of disease, and of experiment with narcotics and anæsthetics or vivisection show us that both the existence and integrity of our mental states are so conditioned by physical causes that we seem compelled to regard them as functions of the body. The whole field of abnormal psychology and especially of insanity, which is so generally accompanied by definite lesions in the nervous system, appears overwhelmingly in favor of materialism. The specific structure of the nervous system which will not admit states of consciousness unless definitely correlated with physical stimuli of a specific kind points in the same direction. The supposed soul can have no visual experiences without a specially constructed nerve for them. It is the same with the tactual, auditory and other senses. Still further the fact of sleep is a most significant "phenomenon" suggesting this purely functional relation of consciousness to the organism. It is presumably the suspension and disappearance of consciousness, right in the midst of life, indicating the cessation of functions which may be resumed under the proper physical conditions. On no theory whatever in this "phenomenon" can we suppose that consciousness, as we know it, is uninterrupted by sleep. The disappearance of consciousness by sleep, but for its recurrence, is as complete as it can be supposed to be at death. The only apparent difference between them is that the vital functions continue in the one and are discontinued in the other. No one questions the total disappearance of the vital functions at death, and as it is not easy to suppose that the soul leaves the body, like a tenant, during sleep and returns afterward, especially as there are no

mnemonic data indicating an extra-bodily experience of consciousness during the interval, the most natural interpretation of sleep is that it is merely suspended physical function, which simply becomes permanent in death. The absence of a mnemonic connection between the bodily consciousness and what any one might suppose to be continued mental action during sleep rather indicates that the evidential considerations are in favor of sleep being nothing but suspended functions of the brain. Hence it would not alter the case to suppose that the soul simply leaves the body during sleep to return at its pleasure or when the bodily functions will permit, because there is no consciousness of such a removal and no known continuance of personal consciousness during any assumed extra-bodily existence, as should be the case if sleep were not a suspended function. Consequently, there is no evidence in normal experience of continued existence independent of the body in either sleep or death, that is, of the fact which would be the only possible phenomenon suggesting a non-material subject or continued existence in spite of the suspended vital functions. Rather the absence of any consciousness of this continued existence as supposed possible is evidence against the assumption. This consciousness is as much suspended by sleep when the soul is supposed to leave the body, on this theory, as when it is supposed to be connected with the organism, and consequently personal identity, in the characteristic that interests us most and makes existence important, is as much lost by this assumed emigration as by the mere cessation of function, so that the survival of the soul on the supposition that it simply departs from the body during sleep has no value for us whatever and might suggest that the same result occurs at death, personal identity in its only important feature being lost and the mere substance surviving as with the indestructibility of matter. We should only be holding fast to the shell while we abandoned the kernel in thus maintaining the persistence of the soul without any conscious link with the past. The real question that interests us is whether consciousness as we know it in our personal identity survives death. If it is temporarily suspended by sleep and accident or disintegrated by disease, the probability would seem to be that it was permanently suspended by death.

The whole history of organic life and of the "phenomena" of chemistry and physiology furnishes illustration of what composition can explain in the cause and suspension of functions. It is not, as it was with the Greeks, a question whether *all* matter was animated, but the question whether we require to suppose more than the actions and reactions of elements in composition to explain the difference between

inorganic and organic bodies. Chemistry shows us that we do not require to suppose that specific functions can or must characterize matter in all its conditions in order to explain the appearance and disappearance of certain properties, and hence that "phenomena" may occur which cannot be traced to a material cause in the antecedent in any sense that it is identical in kind with the effect as produced, and that there are limitations to the capacities of matter to produce effects, showing that variant functions may arise with variation of composition. All these facts apparently show that matter has capacities in composition to sufficiently account for the nature and occurrence of consciousness without supposing a special subject, atom, or system of atoms other than the organism. No facts but the residual "phenomena" of a debatable province clearly contradict either the evidential or the explanatory maxims which I have laid down as conditioning rational conviction on the subject.

Now the question is whether spiritualism can present any satisfactory counter claims to evidence that seems so overwhelming against it. As presented above, materialism has appeared to have no competitor. But in spite of this I think it must be confessed by all candid persons that there are some things to be said on the other side, even though they may not have much force, things too that cannot be attributed to the obstinacy of personal interest, as this is so constantly charged to spiritualism. There is no doubt that the trouble with spiritualism has too often been that it was open to the charge of constructing its theory out of deference to a personal interest in immortality and of evading the cogency of facts in contravention of this doctrine, while it was assumed that materialism had no such personal interest in support of its claims. The materialist could always play the rôle of a stoic in the face of nature when he had a moral character and felt the impulses of an idealism that wanted to look beyond it, but had not the facts to assure itself. This courage in connection with a fine morality is always attractive and the spiritualist wants the virtue while he maintains a philosophy which makes it superfluous. But if the materialist is a hero and the spiritualist is a coward it is easy to predict which way admiration and proselytism will go. Hence in the situation which accrues to the virtue of a courageous submission to facts, the spiritualist has always been exposed to the suspicion of timidity and personal interest in the advocacy of his theory, a disposition which science requires to have eliminated before the truth can be seen and rightly appreciated. Science is supposed to be impersonal, to depend upon those qualities of mind and will which the Christian has exalted in the

virtues of patience, faith and submission to an order not his own. This disposition appears to contradict the intense personal interest which is in such danger of governing the belief in spiritual realities, especially when it is exercised in behalf of one's own survival after death. Consequently until the spiritualist can cooly face the scientific objections to his theory, frankly admit the strength of the materialistic doctrine, and show himself ready to sacrifice the personal and moral considerations that so often move to controversy with the materialist, he is not likely to obtain respect for his position. Moreover, the materialist should not forget that personal interests have often as much dominated his speculations as those of his antagonist, though they were not of the same kind. The force of his imputation lay in the assumption that the love of life and its continuance beyond death is not only the strongest of instincts, but is such as to rob the individual of courage in facing the facts of experience, while he posed as a stoic and hero. But it is possible to be as devoted to an incarnate life as the religious man is enamored of the future. If a belief in a discarnate existence should put limitations to the instincts of libertinism or serve to suggest a check to temptations which a fine conscience must scorn, it is easy to see that the predominance of what the Christian calls "carnal desires" might constitute a personal interest worse than the spiritualist's desire to continue consciousness beyond the grave in a sublimated and ethereal happiness. Hence it is not well to indulge in criminations when creating the temper which has to judge facts. It is possible for materialism to be as much handicapped by prejudice as spiritualism. The two theories have been closely identified with different moral ideals and this fact may prejudice one as much as the other. The bad reputation which Epicureanism has possessed in the estimation of many good people was due to the later development of that school into the debaucheries which were associated, rightly or wrongly, with the denial of immortality, and showed that "this-worldliness" might be even as bad as "other-worldliness." The scientific position must be an impersonal one in relation to both sides, though I think it true that spiritualism must have a harder time eliminating the possibility of prejudicial criminations against itself than the materialistic theory, because the love of existence, separated from certain specific theological theories, is so strong and diverting in its moral effects on true conduct, that it would seem to be an evidence of sound judgment that it had been eradicated in the acceptance of materialism and a source of error eliminated.

But in spite of all real or apparent difficulties suggested by the

possibility of illegitimate motives in the formation of belief on this matter we cannot discredit facts by ridiculing the believer for cowardice nor afford to display any more bigotry and dogmatism on the negative side of the question than on the affirmative, and there are facts which can be urged in favor of the spiritualistic theory that consciousness has a subject other than the brain. I shall not say that these facts prove the survival of this personal consciousness as much as they favor the supposition of an energy other than the organism. Spiritualism has a double problem to solve. First, it has to explain the present "phenomena" of consciousness and it might require a "soul" to do this, whether it be regarded as simple or complex. Secondly, if it is practically or morally different from materialism, it has to show that consciousness as well as the soul survives death. It may be that it can effect nothing more than to produce inductive evidence that the brain or organism is not the subject of consciousness. But whether it can effect more or not, it is certain that, apart from evidence of the actual survival of consciousness, the only possible course open to philosophy is to ascertain whether there are any facts which suggest as rational the belief that consciousness is not a function of the organism, but an activity of some other subject. The following considerations certainly have their weight in this direction, although they are merely negative and depend upon certain apparent weaknesses of the materialistic theory.

1. The first fact is the consistency of a spiritualistic theory with all the facts of normal and abnormal psychology the latter of which are supposed to dispute it. The existence of a soul is not incompatible with disturbances in its own normal functions by its relation to irregular conditions in its material organism and environment. In any sort of relation between two different realities, whether of the same or different kinds, it would be quite natural that the functional action of the one should be affected by that of the other. This is a universal fact in material compounds, or even in mechanical mixtures, and hence it is not a conclusive argument against the existence of a given reality that it does not act in a normal way, if the conditions are disturbed under which it usually acts in a particular way. Forcible as the argument from abnormal psychology is in favor of materialism, suggesting an organic relation between consciousness and the brain, it is not conclusive for the simple reason that the phenomena would be nearly or exactly the same, if a soul existed in the organism, as any theory of causation whatever would involve reciprocal disturbances in either subject when the other was out of harmony. The only fact that pre-

sents definite logical cogency at this point against spiritualism is the "phenomenon" of sleep. Sleep bears against the survival of personal consciousness, if it has any force at all, and against the existence of a subject other than the brain to account for present consciousness. If a subject other than the brain be admitted at all, there is no more difficulty in supposing the suspension of consciousness and its revival after death than there is of its suspension and revival *in* the organism. Sleep is not an objection to spiritualism, if once a subject other than the brain is conceded. It can only create a suspicion that consciousness is a function of the brain and not of an extrabodily substance or subject.

2. The materialist, except when he presses to the last extremity the principle of material or "mechanical" causation, the conservation of energy qualitatively considered, does not assume or concede the presence of consciousness in all matter or material combinations. It is presumably absent from the atomic elements and all inorganic compounds. That is, consciousness is not a universal function of matter. It is possible to give this concession a turn in favor of spiritualism independently of the question whether the residuum of organic "phenomena" might not be accounted for on the principle of efficient causes, or internal "forces." The materialist assumes and concedes the law of inertia, and he concedes this beyond the mere inability to produce or desist from motion and to the extent that matter cannot originate its own action. *External* as distinct from *internal* efficient causation is the principle of initiation in the materialistic theory, when it is forced to abandon material causation as an explanation of even subjective reactions. In this position it is confronted by the apparently radical distinction between inorganic and organic actions. It accepts the doctrine that there is no self-motion in the inorganic world and no action in it without foreign incitement. In the organic world the difference is apparently radical. Organic beings are apparently capable of self-activity wholly in opposition to the fundamental assumption of inertia supposed to characterize the nature of matter, as most convincingly exhibited in conscious and self-conscious beings. This capacity is usually called freedom or free will, denoting either spontaneity, mere self-origination, or velleity when it denotes alternative choice. Of course, the reply is that freedom is an illusion and that what we mistake for free volition is only a more complicated "mechanical" action. But there are several facts which prevent the materialist from confident dogmatism at this point. The first and most apparent is the fact that the spontaneous actions of or-

ganic beings bear no external resemblance to the "mechanical" actions of inorganic matter where the transmission of energy is the type of activity, except in chemical "phenomena." There is no definite coördination or teleological adjustment in purely "mechanical" actions, while the actions of organic beings show that adaptation which defies proof of anything like the simple transmission of energy. There is no fixed relation between the external stimuli and the intelligent co-ordinations and adjustments of living beings. The only safety of the determinist here is to say that we do not know how complex the "mechanical" activities of the organism may be. But ignorance is no incident in favor of determinism, while the positive evidence, on any conception of nature, even the materialistic, is overwhelmingly in favor of freedom, as the purely "mechanical" doctrine of energy is not the universal one. The very strength of the materialist's theory lies in getting internal "forces" to account for "phenomena" which he is compelled to concede are not accounted for by the external, whether efficient or material, and he must be at a loss to limit and define these internal "forces" so as not to include the free initiation of conscious actions. It was precisely the qualitative difference between "cause and effect" that his theory of efficient causation, if worked out which it was not, was calculated to explain, so that he cannot return to the "mechanical" conception to escape freedom. These internal "forces" may include self-activity, so that he must either abandon them as an explanation of consciousness or accept the possibility of self-activity as either denying or limiting the doctrine of inertia. Just so long as materialism leaves inertia unqualified and cannot explain everything by material causation, so long will it be confronted by the facts of qualitative change not transmitted from without as overwhelmingly against "mechanical" determination, while the denial of self-activity is consistent with nothing else. The materialist cannot insist at the same time upon the identity and the difference between mental and physical "phenomena" without defining the relation between them more consistently than the doctrine of inertia and internal "forces" will permit in the attempt to reduce real or apparent self-activity to "mechanical" action which is not conceived as self-initiative.

I am not here reproducing the difference between physical and mental events exhibited in the distinction between inorganic and organic nature, as an evidence of spiritualism, but as a means of showing the relation of this difference to the doctrine of inertia. That is, I am not using their difference as events or effects, but their difference in relation to inertia which is the absence of initial causation supposed to

characterize the nature of *all* matter. Incapacity for self-action is what inertia and "mechanical" causation mean, so that the materialist has to identify the actions of organic beings with those of the inorganic in order to maintain the universality of his principle. If the doctrine of inertia were revised or conceived so as to be consistent with self-activity, the argument just presented would lose its force. But it is precisely because materialism assumes the doctrine of inertia and the uncreated and indestructible nature of motion, that its argument for "mechanical" determinism has its cogency, and the reduction of volition to this type of action would not permit of any real difference between the mental and physical in this respect. This conclusion of the materialist, however, is not consistent with the important distinction between the actions of the inorganic and those of organic compounds of the animal type, the latter of which are indubitably capable of self-activity in a manner not definable or conceivable in terms of impact and transmission. The difference between conscious volition and "mechanical" action is so great that their identity can be assumed only by charging illusion against both immediate consciousness and reasoning, a policy which can only discredit the judgment that adopts it, as this premise must imply that consciousness can no more be trusted to declare for their identity than it can be accepted in its deliverance for freedom. If freedom is an illusion, so must be all convictions as to determinism, especially when we recall the general principle of knowledge enunciated in this work, that ratiocinative processes are exposed to such a host of fallacies that the confidence of the determinist in his logical method is as amusing as it is captious. This is especially true when we remark that determinism never boasts of direct evidence in its favor, but only of ratiocinative argument without any accompanying sense of humor in regard to its liabilities. To discredit the final court of appeal in such matters is to invoke a more thorough scepticism than is bargained for in the controversy, namely, that of the conditions which supply the premises of all proof and the process of reasoning itself. Besides the materialist cannot admit the difference between the mental and physical without exposing the argument of determinism to annihilation, and to appeal to internal efficient causation to explain that difference is to open the way to the acceptance of the testimony of consciousness to the fact of free action. Now the progress of complexity in the functions of both inorganic and organic compounds is accompanied usually by a corresponding complexity of constitutive elements, so that the substantive basis for new functions generally involves something adequate to the "phenomena" to be

explained. When we reach the organic world of spontaneous and free actions we have facts at least apparently at variance with inertia to the extent that the conception of "mechanical" causation will have either to submit to limitations or be universalized at the expense of its antithesis to freedom. As long, however, as materialism antagonizes freedom and tries to evade the manifest difference between simple "mechanical" actions and the conscious volitions of organic beings it is exposed to the argument based upon the widespread and radical distinction mentioned, and it will be natural to believe in a soul to account for volition. If he can appropriate a doctrine of efficient cause and the idea of internal "forces" to suggest the possibility of free volitions as functions of organism, he may still redeem his position from defeat, but he will not relieve his theory from objections short of that policy. He must choose between the limitation of inertia with the admission of freedom and the maintenance of formulas whose cogency lies in their verbal associations and not in the fact which they are intended to cover.

3. I have alluded to the localization of brain functions as a fact in favor of the materialistic theory. But there has recently arisen a view of this localization which creates a difficulty for materialism right where it was supposed to be strongest. The old theory of brain functions, in the form which localized specific activities, sensory and motor, at definite points in the brain conceived these functions as organic actions of these particular centers, vision in the occipital lobe, audition in the temporal lobe, and motor functions about the fissure of Rolando, etc. The old phrenological theory was abandoned in its psychological analysis and specific physiological centers, but its general conception of specific localities for specific functions was retained. But after this new theory had prevailed for a short period the histological discoveries involving a new conception of neural structure and centers, and the improvement of experiments in vivisection and the removal of various portions of the spinal cord and the cerebrum, with the retention intact or the recovery of formerly exercised functions, resulted in that conception of vicarious functions which proves that localized actions were "empirical" and not organic, that is, the result of habit, not of true functional genesis in that specific center. Recent experiments in the excision of important centers involving the restoration of normal functions in spite of the excision, experiments that have been numerous and widely extended over the nervous system, have led to the view that the various centers of the brain are merely *channels* through which energy is transmitted, not organs for their *genesis*. This conception suggests

the view that the brain is a medium for the transmission of energy to the motor system and not the organ proper for mental functions whether intellectual or volitional. It of course still remains possible for materialism to claim that the brain functions as a whole in sensory and motor activities, and that, though the individual centers do not originate them, they may be the channels for the distribution of energy. This position has to be granted its evidential security until it can be shown with equal clearness that consciousness can exist wholly apart from a nervous system. But the discovery that the various centers are mere media is a suggestion that the whole brain may be the same, though there is no finally conclusive evidence to prove it.

4. The next consideration negatively in favor of spiritualism is the impossibility of scientifically "*proving*" materialism. Scientific proof of the absolutely assured sort is the verification of an hypothesis by the Method of Difference, or the isolation of the "phenomenon" and its cause. In the case of materialism which denies the survival of consciousness this method would involve the evidence that consciousness has actually disappeared with the dissolution of the organism. I need hardly allude to the impossibility of proving the negative in such a case, as that ought to be apparent to the merest tyro in philosophic thought, but the fact may require to be asserted as a challenge of that dogmatism which so confidently parades denial and contempt for the opposite possibility without accepting responsibility for the evidence demanded. In view of such dogmatism also it may be useful to examine some elementary problems in science.

If materialism of that sort which maintains that consciousness is a function of a composite organism be true, the extinction of consciousness by death must be a fact and it remains for its advocates to prove the fact, to verify the logical consequences of their theory, if they intend to insist that belief in its survival shall be evidently supported. We cannot say that the coincidence of consciousness with organism is absolute "proof" that it is only a function of that organism, as the method of difference must always be the final court of appeal when scepticism is presented against less cogent evidence. I agree that the Method of Agreement is for the theory of materialism, and that if the method of difference or isolation cannot be applied to prove spiritualism, that the positive argument must remain for materialism. This means that all the evidence that we actually have, apart from residual "phenomena" which science hesitates to accept as important in the problem, represents consciousness and its integrity as definitely associated with the physical organism and as never dissociated from it.

This is to say that the method of agreement represents the known conditions and relations of consciousness while the method of difference, for either proof or disproof, has not been satisfied. Expressed in untechnical language this means only that the evidence, such as it is, and that is strong, is of an inductive character and favors materialism, which, even if actually false, is the only rational one to hold on the basis of the scientific evidence at command. Introspective and analytical results may suggest and support scepticism of dogmatic assurance on this evidence, but they do not supplant or displace the force of the evidential criterion employed by science in the determination of conviction on all such questions. In the last analysis the fundamental standards of science have to be satisfied or the case abandoned. These standards involve the limitation of our knowledge at present, so far as accepted evidence goes, to the association of consciousness with the organism and total ignorance of its existence as dissociated with it, so that materialism has the balance of possibility or probability in its favor until something cogent on the other side can be produced.

But if materialism is to be anything more than a working hypothesis, imposing the burden of proof upon spiritualism, it should be able to verify its contention by the method of isolation. It can multiply facts on the side of agreement as much as it pleases, but it only leaves the effectual proof of the hypothesis untouched. It should "prove" that consciousness is annihilated with the dissolution of the body and not merely that within our knowledge it is always associated with it. This association is freely admitted by the spiritualist and his demand is that its disappearance be proved as well as its known connections and modifications under physical causes. If the materialist cannot "prove" that consciousness disappears with the body his theory is only a working hypothesis and nothing more. I do not deny the correctness of it on the evidence we have. It may be the only rational position possible without traces of a dissociated consciousness. But until definite proof of this disappearance is presented the attitude of the materialist must be that of an agnostic, and not of the dogmatist. This, of course, was the conclusion of Kant established in his own way and without formulating his doctrine in terms of scientific method.

A most important consideration in estimating the difficulties and limitations of materialism is the very significant fact that we have no direct or immediate evidence of any consciousness in the universe except our own. All that we directly know is certain physical "phenomena," organic or inorganic, and the existence of consciousness connected with objective realities is an inference from physical facts

which, in ourselves, we know directly are associated with consciousness. External consciousness is absolutely concealed from us except as we can infer it from its physical effects. This is only to say that the subject can discover consciousness in the object only by the teleological argument after abandoning the ontological, and we have seen that the materialist cannot abide by the ontological interpretation of the relation between the mental and physical without proving too much. He would prove the persistence of consciousness and convert his theory into spiritualism. As long as there is no transmission of influence from object to subject the character of the causal agencies in the object, if allied to consciousness at all, must be indirectly determined by a teleological argument, by the interpretation of physical movements as initiated or not initiated by intelligence. This means that our evidence for the existence of consciousness in others is limited to physical movements of a certain definitely coördinated kind, in the last analysis analogous to our own. But it is important to remark that, if these movements are absent, this absence is not proof of the discontinuance of an objective person's consciousness. All that is proved by this defect of evidence is that consciousness has ceased to produce effects in the organism and the physical world, not that the consciousness has ceased to exist. This is finely illustrated and proved by those cases of paralysis which recover sufficiently to attest the continuance of consciousness during the entire absence of the physical evidence for its existence. As consciousness in others thus depends absolutely upon the possibility of producing a physical effect in or through the organism with which it is associated as evidence of its existence, the interruption of that effect by death or sleep is no proof of its decease or discontinuance. It may still subsist and yet be unable to give any objective evidence of this fact. Consequently the materialist is absolutely cut off from the "proof" of his theory by the apparent disappearance of *objective* consciousness. All that he can claim is that the evidence of its continuance is wanting. But he cannot positively deny its persistence in the case of others than himself. He can only suspend his judgment and say that he does not know.

But if the disappearance of consciousness in others cannot be proved, how does it fare with the subject's own consciousness? It will be clear that he is equally helpless here. For no man can attest even to himself the decease or discontinuance of his own consciousness. To be aware of his own annihilation is a contradiction. All that a man can be aware of is either the facts of consciousness that attest his own existence or those that attest the existence of external objects physical or

mental. He cannot directly or indirectly prove his own annihilation. We are never even directly aware of the suspense of consciousness by sleep or accident in our bodily life. We can only infer from circumstances that some unusual change has occurred and the testimony of others may enable us to form a conception of sleep and syncope, and what we observe objectively in their experience may afford a further clue to what is meant by the lapse of consciousness in ourselves, which may actually occur without any sense of temporal loss. It must be the same in the case of death, if we are actually annihilated. There could thus be no evidence to either ourselves or others of our existence in this case; not to ourselves because we should be extinct, and not to others because we could not produce the necessary evidence. It will thus appear that the only theory which can have any hope or possibility of proof is the spiritualistic, as actual survival would supply the *subjective* attestation and circumstances *might* arise in which it could objectively attest personal identity. But the materialist cannot produce either subjective or objective evidence of annihilation. He is hopelessly excluded from the proof of his theory.

The proof that consciousness had a subject other than the brain or organism would clearly establish the possibility of a surviving consciousness beyond a doubt, but it would not differ practically from materialism unless it did carry this implication with it. This possibility, as we have seen, is involved in the admissions of ancient materialism regarding what may be called a "spiritual body." But this granted, it would still remain to be proved that the consciousness which we know in our bodily existence had any continuity or revival after the dissolution of the organism, and without this revival there would be no practical interest in either adopting or refuting materialism, while there would be no final disproof of it until the survival of personal and individual consciousness had been proved or rendered probable. All that the proof of the existence of a soul or subject other than the brain would establish would be the condition on which the *possibility* of a surviving consciousness might rest, not the *fact* of it. The suspense of consciousness, as in sleep, might be perpetual, or the alteration of personality, as in accident, disease or secondary consciousness, might supplant the normal "self" and all but the substantive or subject identity lost. In this way the soul might change its functional activity so much, if it ever resumed any at all, that nothing would be gained for our personal consciousness and its ideals. The Platonic doctrine might be realized. The consciousness which actually interests us might still be the resultant of the composition of the soul with

the organism, while the soul might function in some other manner after the separation without any mnemonic connection between the incarnate and the discarnate condition. The real question that concerns the man who wishes the problem solved is whether our personally known consciousness in any way survives and exhibits that mnemonic connection between the present and future condition of the soul which may be called personal identity.

That the case rests upon showing the fact of personal survival or the continuity of personal consciousness ought to be apparent from the difference between the doctrines of the indestructibility of matter and the conservation of energy, though they are closely related to each other, and their relation to the materialistic theory.

The indestructibility of matter depends for its proof upon the retention of some identity in all its changes. Some property must remain the same in the resolution of a compound into its elements in order to suppose that the resultant is identical with the antecedent material substance. The property on which physicists rely on determining this doctrine is weight. Matter retains its weight in all its metamorphic changes and so we infer that it is indestructible. There may be other properties persistent in this way, but it is not necessary to take any account of them. That of weight is sufficient to prove the persistence of matter. One element of identity suffices to make out the case and without it we should have no reason to believe in the indestructibility of matter. The view that was so long held would be quite a rational one, namely, that matter was a phenomenal and transient substance, and the way would thus be opened for a theory of its creation.

If then we could show with the proof of the indestructibility of matter and that of all substantive reality, that consciousness was the attribute either of some elementary matter or of some reality, simple or complex, other than matter, we should have probably an invulnerable argument for its personal survival. Its *ad hominem* importance could not be denied. But the difficulty of showing that an independent subject of any kind is necessary to account for the fact of consciousness makes it imperative to prove the fact of conscious survival as a condition of saying anything about its subject.

But this necessity is still more apparent from the doctrine of the conservation of energy. If we were assured of a perfect qualitative identity and convertibility between antecedent and consequent either in material phenomena or in mental and physical phenomena, as already shown, we might hope to have an effective argument for the continuance of personal consciousness under any supposition of its ground.

It would not affect the case if its ground were material or immaterial, simple or complex, or whether reincarnation or individual existence were supposed. But the fact that the qualitative interpretation of the conservation of energy is either doubtful or all but abandoned indicates that we have no positive assurance that the requisite identity exists between the different members of the phenomenal series. All that seems to be established is that certain definite uniformities are manifest in the causal interactions of realities. Some remain satisfied with an affirmation of the quantitative identity of the members, but fail to realize that even this modification of the doctrine must carry with it some assumption of qualitative identity in order to justify the theory of quantitative identity in its true conception. Hence the utmost that seems assured is the fact of uniformity of phenomenal relation without supposing that identity in the terms has been established, though each term may retain its quantitative or qualitative identity in time and space. Such a qualification of the doctrine implies the possibility that qualitative manifestations may arise and disappear, as they certainly do in the composition and dissolution of organisms, and it remains to show what qualities remain intact in the phenomenal series as weight remains in substantive transformations. In this situation we shall have to prove the fact of personal continuity in order to eliminate or qualify the sceptical interpretation of the conservation of energy. When the origin and disappearance of certain qualitative phenomena are certain in spite of the doctrine of conservation, it must be a question of fact to decide whether any particular quality or activity is consistently persistent with the general application of conservation which is in fact an abstraction.

5. But if materialism cannot prove itself by an application of the method of difference, does the situation fare any better for spiritualism? All that can be said philosophically in answer to this question is that the negative evidence afforded in the difficulties of the materialistic hypothesis do not suffice for any proof of the spiritualistic theory. But the demonstration of the inability of materialism to establish its own claims indicates just what the problem is and suggests what has to be done if the rival doctrine is to be maintained. I grant that there is no scientific disproof of materialism possible except by the isolation of individual consciousness and the evidence of its personal identity in survival of death. Whether this be either possible or a fact it is not my purpose to assert. Bul I may indicate the conditions under which such proof is conceivable.

Since we have no direct evidence of the existence of external con-

sciousness and no evidence direct or indirect of its extinction, and since we cannot attest our own decease either to ourselves or others, the only hope of "proving" any survival at all must be through the inductive interpretation by the living of effects produced in the physical world by discarnate spirits, if they exist, and if such effects be possible. If they are not possible, assuming the possibility of survival, no living person can obtain evidence of survival, and deceased persons, if they actually survived, could only directly attest to themselves their own survival. Their only hope of proving their continuance after death to the living would be some effect in the physical universe that was sufficient to establish personal identty. The evidence of their survival must be just these physical effects, however determined.

The difficulty of effecting such a result is quite apparent. What we know of consciousness and its action on matter is connected with organic bodies and all evidence is lacking for the direct action of consciousness on inorganic matter. Unless this action is possible there is no hope that a discarnate consciousness, if it existed, should reveal itself through inorganic physical effects. Even if it could produce effects on dead matter they would have no evidential value unless they were more than simple mechanical movement and were teleological coördinations indicating intelligence. But mere intelligence would not suffice. It must be evidence of a particular intelligence representing the identity of a given deceased person, and there is no definite standard to determine how much evidence may be required under such circumstances. Even if mechanical effects through inorganic matter were possible for a discarnate soul the task of proving its identity with the past would be extremely difficult in the face of what we know about the relation of consciousness to matter, or even the relation of mind to mind. The more natural direction for effort and effect would be through organic matter, as most nearly related to impressions from consciousness, and if the brain be a mere channel for the transmission of energy to the motor system it would seem possible to hope for such a mediation. But here the discarnate soul would be confronted with the fact that the organism is already in possession of another and living soul, and this agent would either have to be dispossessed or the effect in the physical world would have to be produced through its intermediation. Whether such a thing is either possible or a fact, it is not yet time to assert with confidence. But there are some facts which point toward its possibility. There is the fact of subliminal hyperæsthesia which represents the accessibility of the subject to impressions far more delicate and refined than those in our normal sensibility and

"perception." This is not the place to quote evidences of this fact, but any work that shows a study of psychopathology will exhibit them in abundance. This hyperæsthesia may extend even to the capacity for receiving supernormal information not amenable to the normal action of sense. This reception of hyperæsthesic impression we find associated with what is called subliminal mental action, a process apparently duplicating all that we know of consciousness, except the normal mnemonic recognition. Now it is admitted that, when the control of the motor system by the normal consciousness is relaxed, the subliminal mental functions may assume sovereignty and give expression to ideas below the threshold of the normal "perception" or not observable by the normal consciousness. Sometimes the normal state may be aware of the motor action and its result after it is effected, but has no knowledge of the influence effecting the result. That is, it may be aware of what is going on but not aware of any conscious causation in the case. Sometimes it is not aware of even this much and cannot contemplate the results with any other feeling than that with which it observes the movements of foreign objects. Sometimes the normal consciousness may be totally suspended and automatic or subliminal results are produced which, but for the testimony of others, would never be connected with the same organic mechanism. There are thus various types of subliminal action supplanting the normal control of the organism. If now any favorable rapport of this subliminal with a transcendental consciousness should be established by means of its hyperæsthesic condition, especially if anything like telepathic percipience is possible, and control of the motor system should remain intact, a discarnate soul might effect results in the sensible world leading to its identification, though this had to be produced by subliminal intermediation. In any case the facts would have to represent something transcending the mnemonic experience of the subject through which they were communicated. On the other hand, both the subliminal and the normal mental control of the motor system might be dispossessed and only the automatic conditions of the organism left intact, if the vital functions are fortunate enough not to be suspended or deranged by the process of dispossession, as they are by the dispossession of death. The capacity and habits of this automatic system for responding to mental action, whether normal or subliminal, shows a delicate set of conditions and with the dispossession of both normal and subliminal control over them, its hyperæsthesia or supernormal condition might expose it to the influence of an outside mind. If such a situation should arise, and if an individual consciousness did have the

fortune to survive death, rapport with that automatic condition might enable a discarnate consciousness to impress its influence upon it sufficiently to prove identity or continuance after death. This would depend wholly upon the character of the effects produced in the sensible world. They must be of that nature which will prove personal identity and which transcend explanation by the normal processes of experience, and they must represent a mnemonic connection with an incarnate past, as memory is the condition of personal identity in all conditions, that is, such personal identity as can have any moral value for consciousness. In any case, whether through subliminal intermediation or the dispossession of both subliminal and normal control of the motor system, the results would be affected by the limitations of the medium through which they were produced and the abnormal conditions, physiological or psychological, under which they were realized.

The condition which we have here conceived as necessary for a surviving consciousness to produce effects in the sensible physical world indicate an abnormal situation. That is to say we have to assume abnormal mental and physical conditions as a requisite for any other influence in the physical world than that which is exercised by the normal and subliminal action of the subject. There will be no question about the impossibility of obtaining these effects in an evidential form unless the production of them should exclude explanation by normal and subliminal action, and if they are conceived as possible at all, there is no alternative to the admission that such conditions must be abnormal with all the difficulties and limitations involved. The disintegration of the normal personality, and the disorganization of the regular channels of motor impulses and actions and the liability to all sorts of abnormal interjections of physiological and psychological automatisms, and even hallucinations, would be the most natural expectation in such cases, so that one might even suppose *a priori* that there would be little chance of adequate evidence ever coming through from a supersensible existence to indicate the survival of any rational consciousness in a way to make its integrity respectable. This was apparent to Kant who had been greatly impressed by the apparently supernormal "phenomena" of Swedenborg, but saw at the same time that many of his experiences were subjective productions of his own mind and to be classed accordingly, though the conception of secondary personality was not then known and has only shown its significance in the limitations of spiritualistic theory in recent times. The influence of Leibnitz on Kant's conception of all subjective action

would lead him to hold that whatever came into the mind from without would most naturally undergo a modification determined by the nature of this subject and its laws of action and reaction, and he would even not admit the existence of any external reality at all unless some compulsory data of consciousness made it insane to accept any other alternative. The scientific and philosophic assumption remains the same to-day reinforced by many thousands of facts which limit the overconfident manners in our description of the external world even of the sensible type, to say nothing of our limitations in regard to the supersensible, though the consciousness that sensation does not exhaust the meaning of even the sensible world might teach us humility when tempted by dogmatic tendencies in regard to the supersensible and what it *might* effect through abnormal conditions. But whatever the influences that determined Kant's conception, he expressly indicated in a general way the conditions of any definite relation with a supersensible world of "spirit." Caird, in calling attention to the fact, enlarges upon it more explicitly. Speaking of the conditions which obtain in the commerce and reciprocity of ideas between living beings constituting a moral and "spiritual" community in actual life where physical conditions of a common character affect the possibility of this communion, Caird represents Kant's view in the following terms:

"Supposing this view to be true" (the actual influence of the spiritual world), "it would follow that, even now in the present world, the spiritual subject must take the place among the spiritual substances of the universe which is appropriate for it according to moral laws; and it must take that place with the same necessity with which material bodies determine their respective places according to the laws of motion. And if in a future state the community between the soul and the material world should be broken off, the moral laws that already determine its relations in this world would continue to operate without a break. The only difficulty that remains unexplained is, how we are to reconcile the existence of such a spiritual community with the fact that we are so seldom conscious of it. For the spiritual world is present to man, if at all, only in occasional glimpses, which, besides, have often a somewhat uncertain and even irrational character. This, however, is already explained by what has been said of the nature of the consciousness of man as contrasted with that of purely spiritual beings. For what we experience as spirits will not naturally enter into that consciousness which we have of ourselves as men; or if it does so enter at all, it will only be under abnormal conditions, and even then the intimations from the spirit world will necessarily take the form of the con-

sciousness into which they intrude. Spiritual realities will be pictured as objects and events in the natural world, and all the imperfections of the medium will affect the vision. For men in general such perceptions will have something of the character of disease; and if there are a few exceptional individuals who are so constituted as to be continuously conscious of spiritual influences, their minds will be so much drawn out of proper balance as to the things of this world by the confusing presence of another, that they will often be regarded by other men as insane. In this way it only needs a little ingenuity to explain all the facts of ghost-seeing in accordance with our primary assumptions as to the relations of the two worlds. 'For metaphysical hypotheses have wonderful pliancy; and it would show great want of ingenuity not to be able to adapt *this* hypothesis to every story of supernatural visitations, and that without taking any trouble to investigate its truth, which in many cases it would be impossible, and in yet more would be discourteous to attempt.'"

In the Anticabala Kant points to an alternative explanation of phenomena pretending to be effects of a transcendental mind in the physical world and between the two alternative possibilities does not decide as to the facts. Dreams and hallucinations, he thinks, explain so much of the pretentious claims for "spiritualistic" communion that there is no evidence for any other more reliable facts, and he would have added secondary personality to the list of difficulties had he known it as we do. In later chapters of his "Dreams of a Ghost-seer" he speaks respectfully of the possibility of such an interaction between the physical and spiritual worlds, though dubious of its evidence and saving his reputation for sanity by appropriating some of the materialist's useful ridicule of the case. But he nevertheless frankly admits that materialism cannot be dogmatic on the matter and points to phenomena and suppositions based thereon which must be reckoned with before any form of "spiritualism" can prove itself, and conditions all evidential matter indicating its truth upon abnormal mental conditions. He simply indicates that philosophically one side of the question is as possible as the other. Such a thing as collecting data or evidence to prove one or the other of the alternatives did not occur to him, or if it did he was not disposed to undertake the task. He was content to deal with the problem in a speculative and not a scientific manner, and this was probably all that was either possible or called for at his time. The extent to which his general philosophical point of view with that of Leibnitz has been accepted in regard to the form which all "knowledge" must take shows clearly enough that the conditions

must be very exceptional if any influence from a transcendental world could be transmissible, and that, representing either a normal or an abnormal situation, the influence must undergo the modifications which the nature of the subject inevitably produces. The proof of personal identity in such circumstances will be difficult and must depend upon that fortunate set of circumstances which will enable the memory of the past to retain its integrity in the transmission sufficiently to be recognized.

The difficulties of the problem will be better appreciated if we will examine the limitations of communication between living beings right here in the physical world. We usually assume that this is quite easy. It is such a common matter of social life that we forget the real conditions and limitations of all communication whatsoever between mind and mind. The ancient Greeks, after scepticism had shown the relativity of "knowledge," raised the question whether virtue and "knowledge" could be taught, a question apparently absurd to most men, but perfectly rational to all who reflect for a moment upon human experience. We take it in common life as an axiom that "knowledge" can be taught and that ideas can be communicated with ease from mind to mind. But there is no more mistaken doctrine. The fact is that nothing can be taught. Everything has to be learned. We cannot communicate ideas at all. We can only make signs or produce sounds, and in the process of experience we have managed to agree upon the symbols of what is in our minds and the use of signs effects a condition in the physical world that is interpreted by the mind to whom we are supposed to communicate ideas. We have only to meet a savage or foreigner to see our helplessness in the matter of communicating ideas, unless we can use signs, and even when we have agreed upon our symbols in general, a common experience and personal insight are the indispensable qualifications to intellectual commerce. This is perfectly clear when we reflect for a moment, but we forget it when passing judgment upon the problem of communication between a spiritual and a material world. When the difficulties are so great in the physical world, requiring long experience to both qualify us for understanding signs when used and to control the motor organism in the expression of our own thoughts, we must not wonder at the limitations under which discarnate consciousness would have to labor in the production of effects in the physical world adequate to the establishment of its identity.

In this discussion of the conditions for "proving" spiritualism, I am not concerned with the question whether the theory is provable in

fact or not. I have only been showing that, in the contest between materialism and spiritualism, the former stands no chance whatever of "proof" and that only the latter can offer a situation or possible conditions for it in known facts, if the soul should actually survive and retain consciousness, a possibility that cannot be denied by the materialist with any show of dogmatism because the only evidence for his theory is in the method of agreement which never "proves" a case. It can only decide the direction of rational belief until the method of difference has decided whether one term of the coexistent facts is or is not absolutely dependent upon the other for its existence. Whether spiritualism can actually "prove" itself scientifically I am not competent to decide, but I think the "phenomena" of abnormal psychology show that it is possible, if consciousness actually survives death, and we should only have to consider the evidence that may be put in for the alleged fact of this persistence, accepting it if satisfactory and rejecting it if it is not. There is certainly a larger and better qualified body of alleged facts for consideration in this direction than any that Kant was called upon to estimate, and if Kant found it as difficult to doubt as to believe the conclusion there is a justifiable malice in reminding his disciples of his fairness. It is certainly strange in this matter, however, that the idealist, who pretends to sneer so contemptuously at materialism and all its children, should outdo the materialists in his scepticism of such a possibility as survival and even reiterate with more than dogmatic fervor all the facts of the materialistic theory without permitting himself to be called by the right name. He has simply forgotten the cosmopolitan and philosophic temper of his master, Kant, who saw the possibility but had not sufficient evidence at his command to decide the question, while he recognized it as a legitimate problem though insoluble at his time.

However this may be I am discussing the philosophic, not the scientific side of the question. The scientific consideration of the problem requires us to ascertain and analyze alleged facts purporting to "prove" the truth of survival rather than its possibility and consistency with other accepted facts assumed to antagonize it. It is not my purpose to undertake this task but only to estimate the relative strength of the two theories in terms of undisputed facts and the assumptions that are made in all attempts at explanation.

6. It may be important in this connection to examine briefly Kant's position on the subject of the soul as discussed in the *Kritik*, and from the result of this examination we may find additional negative evidence for the spiritualistic theory. I do so, however, for no other

reason than the fact that idealists generally have supposed that Kant's argument has put an end to the discussion of the subject in the philosophic field. Whether this is true or not, it is a fact that Kantian idealists have usually abandoned the discussion and virtually grant that there is nothing to be said on the affirmative of it, and philosophers generally acquiesce in the negative verdict. It is interesting to remark, however, that in doing so they have actually assumed the validity of a point of view for discussing the subject which Kant explicitly denied and repudiated, while they maintain silence on the argument which he regarded as valid! What Kant regarded as futile was the argument from what he called "rational psychology." When sifted down to its proper import this was the application of formal logic to conceptions introspectively determined. This criticism is unquestionably true and effective. His contention was, in his own phraseology, that consciousness could not immediately determine the simplicity of the ego, and as the fact of this simplicity was presumably necessary to the proof of immortality, there could be no evidence in consciousness introspectively determined for this survival. The force of this argument lies in the fact that the assumed simplicity of consciousness as a function was not evidence of the simplicity of the subject. The subject might be complex or composite and the function simple, as the resultant in the composition of forces. This is conclusive enough, on the assumptions and conceptions generally prevalent in the metaphysical physics of that time, and I think is true on any philosophic assumption but one, namely, the Herbartian notion of the "real" and that view of the atom which holds that it can have but one simple property, and, *vice versa*, that the presence of a simple quality is evidence of a simple subject. This view was not prevalent at Kant's time and he can hardly be held responsible for not considering and refuting it. But I think that he either misconceived or misrepresented the dogmatists in the matter. Their tendency was to argue precisely as if they assumed the convertibility evidentially of the simple in the "phenomenon" with the simple in the subject. This would mean that the real point of difference with the contention of Kant turned precisely on the position that simplicity of consciousness *did* imply simplicity of subject, a conception that grew explicitly into the doctrine of Herbart and represents the implicit view of the "rationalists." Kant's argument was thus only a refutation based upon the force of assumptions which did not represent the *only* contention made by the "rationalists," though they had not explicitly developed as clearly as they might have done the real import of their position. What the "rationalists" aimed to

do was to present an *ad hominem* possibility for the existence of the soul as something other than the organism, and they assumed what the materialists had to admit on their own philosophy, namely, that a simple individual atom survived all its combinations. Now if the soul could be shown to be an indivisible simple substance it too must be imperishable and survive its tenancy of the body. So much was inevitable on the materialist's premises, though the "rationalist" with his theistic position was not obliged to commit his fortunes to the indestructibility of the atom. He might make consciousness and its subject what he pleased. But in order to supply a positive "empirical" content for the argument in behalf of the simplicity of the soul he went on to use the assumed simplicity of consciousness as evidence of it, the conclusion being true on the assumption that all material "phenomena" and functions, being resultants of composition, must be complex and transient, and that there is satisfactory evidence for the simplicity of consciousness. That is to say, on the assumption that only simple subjects can have simple functions and, *vice versa*, only simple functions can be evidence of a simple subject, the appeal to consciousness and its simplicity as a fact would be conclusive, provided that we can trust the deliverance of consciousness on the matter of its simplicity. But Kant says nothing about this possible scepticism of the mind's capacity to introspect the simplicity of its function, perhaps because it was not necessary to his argument, though it is quite as possible to question this capacity of consciousness to determine its simplicity as it may be to vitiate the inference from that simplicity, once granted, to the simplicity of the subject.

That Kant probably misunderstood the real position and contention of the "rationalists" is apparent from his treatment of Mendelssohn's doctrine, or rather argument, which is accepted as the representative of the "rational psychology." In his reply to Mendelssohn, Kant's position is so manifestly absurd as to raise the serious question whether he ever understood the problem at all and whether he has not so misrepresented the whole conception of it as both to cause all the confusion in philosophy since his time and to divert the human mind from the conception of what it is now and was before his time. The conception of the "soul" as an "intensive quantity" (intensive Grösse) that might *gradually* vanish (verschwinden) as a reply to Mendelssohn is so absolutely absurd, as an implied representation of the case, that we wonder that Kant ever got within gunshot of a philosophic problem. "Intensive quantity" applies to "phenomena" and not to substance in its elementary conception. The term "soul" was a name

for an indivisible *substance* and not for a "phenomenon" of any kind. It was simply begging the question to suppose the possibility that the "soul" should be an "intensive quantity" and simply betrayed entire ignorance of what the fundamental conceptions of previous philosophy had been. I am not saying or implying in this argument that the soul cannot be an "intensive quantity" as well as its "phenomena." That may very well be as a fact, so far as the contention here made is concerned, though I think it absurd and untrue, but it is no refutation of the assumption of its simplicity to assume that consciousness may be an "intensive quantity." Mendelssohn's *simple* substance was indestructible because it was *indivisible*, and indivisible things could not vanish. In fact indivisibility, indestructibility, and simplicity were convertible terms, and no simple substance could gradually disappear, if the indestructibility of the atom and the conservation of energy were to be accepted as either proved beyond question or as *a priori* truths. I am not saying that there are any such substances. For all that I know or care, even atoms may be destructible or gradually vanish. But it was the definition of a simple indivisible substance that it should not be destructible, so that if the soul were once admitted to comply with those terms the conception of gradual disappearance would no more apply than that of abrupt annihilation. Gradual disappearance can apply to the divisible, to complex substance, but to simple substance never. Mendelssohn is invulnerable on this point. Whether the soul exists and is simple are different questions which may be disputed, but that it persists, if it exists and is simple, cannot be disputed on materialistic assumptions. That Kant shows his misconception of the case is evident in his statement about the intensive nature of *consciousness* which may gradually vanish. He shows two fatal errors here. The first is the virtual identification of the "soul" and consciousness, which is absurd, and inexcusable even on his own philosophy. "Soul" is the subject and consciousness is the name for a function, and the question was not primarily whether consciousness would vanish, but whether the "soul" vanished. It was clear in the "phenomenon" of sleep that consciousness did vanish, but that it was revivable, and the question was whether anything survived death that made consciousness revivable, not whether it vanished in such a change. The second error was that Mendelssohn and the "rationalists" were not talking about consciousness, but the subject of it. They might well admit and did admit that consciousness vanished in sleep, while the subject did not, and they might admit that consciousness permanently vanished at death

while the "soul" survived. There might be no personal interest in such a survival, any more than in Plato's immortality, but that is not the question. The primary point is whether the subject survives as the condition of any reoccurrence of consciousness, and Mendelssohn could have an *a priori* possibility of that reoccurrence after death, if he could be assured that the subject was not dissolved by it. But whether he could prove either this survival or the simplicity of the subject or not, the assumption of a simple indivisible and therefore invanishable subject, on the simplicity of consciousness, whether it be an "intensive quantity" or not, was consistent and rational. Invanishability, being convertible with indivisibility in the philosophic parlance of the time, guaranteed survival, if the doctrine of the persistence of simple substance were true, and so would be a refutation of the allegation that consciousness was a function of the organism, provided that you could show that consciousness was a simple function and implied a simple subject. What the evidence of this simplicity is was another question. But the simplicity once granted there was no escape from his conclusion.

Moreover, in supposing that, because consciousness might gradually vanish, the "soul" might gradually vanish also, Kant practically admitted that the simplicity of consciousness, which he actually accepted, implied the simplicity of its subject. He here applied the principle of identity in his argument and ought to have seen that the same principle held true in the assumption of the simplicity of consciousness as he supposed it in the case of its "intensive quantity." That is to say, if the "intensive quantity" of consciousness would prove that the subject also was an "intensive quantity," the simplicity of consciousness would prove the simplicity of the subject, and Kant admitted that consciousness was simple. The contraverse of this will also be true. And again if the simplicity of consciousness is compatible with the complexity of its subject, as Kant maintains, the invanishable nature of the "soul" is quite compatible with the vanishable character of consciousness, as we can prove this by the "empirical phenomena" of sleep without any reference to the nature of the subject, whether material or spiritual, simple or complex. Here the subject persists after consciousness vanishes. But there is the possibility of its recurrence, which would not occur if the subject dissolved, and hence the problem is first to ascertain the philosophic conception which will offer the materialist an *ad hominem* alternative to his conclusion. This is supplied in the conception of the soul as simple. The evidence of this simplicity as a fact may be imperfect or worthless, as it is certainly not supplied by the introspective testimony of consciousness.

But it is no attack upon the position of Mendelssohn to resort to the "intensive quantity" of consciousness, as this is simply running away from the issue.

A further point in Kant's argument is in contradiction with his doctrine in physics which assumed the persistence of substance, which he affirms in the *Kritik*. He actually defined "substance" as the permanent in change. Now if the "soul" can possibly vanish gradually after assuming that it is a substance, it is possible for any other substance to vanish in the same way. He could apply his idea of elanguescence to the "soul" only on the assumption that it was not a "substance," but a "phenomenon," and thus by begging the question with his opponents who held that the subject was a spiritual substance and consciousness its function. Kant was perfectly familiar with the doctrine that the "soul" was a substance and ought to have known that this idea was so prevalent in his time (actually recognized in the *Kritik*) that it was an evasion of the issue to thus talk about elanguescence.

But after arguing against Mendelssohn's spiritualism, Kant turns around to disprove the materialistic theory by the following argument. He asserts that "nothing real in space is simple," and then assumes that consciousness is simple, and while looking at matter as complex he denies the possibility of explaining consciousness by this matter on the ground that it is simple and cannot have a complex subject, after having said that the simplicity of consciousness was compatible with a complex subject as an argument against the "rationalistic psychology"! Or to put his argument in another way, which he does. All the real in space is complex, and constitutes "matter." Points which are the only simple data in space are no part of it. Consequently materialism cannot explain consciousness. One wonders what conception of logic Kant had to see any rational "therefore" in this connection, especially that he had just said that the intuited simplicity of consciousness did not imply simplicity of subject. Of course it might not imply its complexity, but his position did imply the consistency of the fact with either simplicity or complexity. Consequently he could not legitimately affirm the "impossibility of explaining" consciousness by materialism; for his very argument previously implied that we could. Of course, what Kant had in mind was a lot of unwarranted assumptions borrowed from the philosophy of Leibnitz, some of which he apparently accepts and some of which he apparently rejects. Thus in making "matter" complex and the real in space he abandons the conception of Leibnitz who accepted a supersensible "matter" and did

not limit his conception of it to sense. Then in supposing consciousness to be spaceless because it was simple he made a perfectly absurd and unwarranted assumption for which there is no ground but his imagination. But granted that it was well supported, the contention that we could not intuit the simplicity of the subject while we could that of consciousness left this simplicity of consciousness compatible with the complexity of the subject, and materialism stands sustained instead of refuted. To repeat a point, the whole trouble with Kant lay in his playing fast and loose with conceptions that were partly Leibnitzian and partly non-Leibnitzian. The force of his remark about the "real in space" as complex comes from the assumption of Leibnitz that the simple "real" is spaceless or a point, and by natural inference that the "phenomenal" is extended and divisible, the unextended being indivisible. Now after having thus made consciousness spaceless how can he speak of it as gradually vanishing? Moreover, when he talks of "points" as not constituting space, while this is unquestionably true, he goes on to argue for the impossibility of consciousness being a function of the extended because it is unextended, assuming that the complex cannot have a simple function after having previously argued that it was possible! Leibnitz's very conception of "matter" was that of the unextended, space enveloping it but not being a property of it. Hence Kant simply begs the question as to the nature of "matter" by dogmatically making it complex when the whole history of materialism shows that it was regarded as simple in its ultimate nature. But even this change of meaning for "matter" to the spatially and sensibly real does not help his case unless he grants that the nature of the function or "phenomenon" determines the nature of the subject, in which case Kant would escape materialism, but would at the same time be absolutely forced to regard spiritualism as proved, since the admitted simplicity of consciousness would carry with it the simplicity of the subject, and hence the conclusion of Mendelssohn.

Kant assumes that *mathematical* and *physical* divisibility are the same or mutually implicative. This can be denied. Infinite mathematical divisibility does not imply any physical divisibility whatever. Matter might occupy all the space you please and be absolutely indivisible physically without its annihilation. Kant ought to have seen this with his doctrine of space which was not only subjective but so distinct from the nature of matter that you could not argue from one to the other. Besides having said that space is not constituted by "points" how could he even make space divisible in any way ever to reach "points" at all. The materialist's "divisibility" was not

concerned with this mathematical problem and was not even conditioned by the elementary nature of the constituents of its compounds. What it meant by divisibility was resolution into parts in a manner which destroyed certain functions in the process. Kant misses this point in the hairsplitting arguments upon which he relies while characterizing them by this very defect.

But the most interesting fact is that Kant insists that there are arguments for the existence and continuance of the soul that are valid. These, however, are said to be the products of the "practical reason," whose meaning no man has ever yet discovered clearly, unless it is identical with the "intuition" of "common sense" which it is the delight of the idealists and Kantians to despise. They are as full of paralogisms as the arguments of the dogmatists, and have no value unless reducible to logical form. Kant was simply throwing a sop to Cerberus in them, and since his time every one who has felt the force of his criticism of "rationalism" has also felt the fatal weakness of the practical arguments, because no one takes his "practical" arguments seriously when accepting the cogency of the others in the negative result. Every intelligent man sees their worthlessness as "proof" and for the same reasons that he assumes the failure of dogmatism. Philosophers are rather ashamed to use such arguments. I grant that we cannot see how life and its ideals and morality can be completely rational without survival after death. But then things may not be completely rational at all. Proof of survival may be the condition of showing that things are rational in the direction of that ideal whose integrity is interested in the issue, and if that is not proved or provable, we certainly do not have the evidence of any rationality apparent in the course of things that extends beyond the "phenomenal" existence of the present. The whole movement in thought since Kant has been in this direction, and refuses to measure the value and meaning of the present by the future, even though it finds in the persistence and unity of consciousness at present a fact which materialism has trouble in explaining. In this development philosophy has been more consistent than Kant. I do not deny that Kant was right in his estimate of the relation between the moral law and a future existence, as I think the argument certainly appeals to men who have felt the springs of that law and who yet had no quarrel with nature for apparent injustice. But I must contend that the argument is worthless unless it is reconcilable with the metaphysical questions which insist upon haunting our reflections and scientific theories of present facts. It is the absurd dualism between the "theoretical" and the "practical" reason that

creates offence. There is no more rational ground for following "practical" reason than there is for accepting the conclusions of the "theoretical." Our duty is to purge "rationalism" of its real or supposed fallacies, not to repudiate the process, especially when we cannot show its weakness without accepting the logical processes which it was the real or apparent object of Kant to discredit. This appeal to the "practical" reason only took the matter of belief out of the hands of sane and reflective thinking and simply handed it over to the caprices of the individual emotions where the "will" to disbelieve would be as valid as the "will to believe." What Kant should have recognized was the fact that criticism must be applicable to all arguments or none and that the methods of "speculative" reason are as legitimate as those of the "practical" and that error arises in the failure to investigate fallacies and not in the use of reason as an instrument.

7. There is a sceptical difficulty with materialism which I have reserved for consideration in this connection, and which the materialist seems never to have suspected, and for which he has never provided any adequate protection of himself, though in many instances he has admitted the facts which suggest a difficulty in his system. It is an objection which characterizes the idealist's point of view, and comes from conclusions established or supposed to have been established by epistemology. It is the general antithesis between the subjective and objective. Idealism in almost every form has carried this distinction to the whole field of reality, insisting that we do not know its "nature," but only its "appearance," or the way in which we are affected by it. Occasionally the idealist awakens to the fact that this antithesis dissolves itself into unity, if I may use that expression, by the very exclusion from "knowledge" of that which is said to determine its limits and which becomes nothing in the problem, leaving thought where it was before, and reinstating objective reality in new terms. But usually the temptation is to keep up a passionate warfare against materialism, partly as an excuse for existence, partly as a blind refuge for religion, and mainly as an escape from the accusation of having common sense. Nevertheless, whatever the embarrassments it suffers in the struggle between doubt and belief, it enjoys the protection of facts which the materialist does not always face as fearlessly as he should. Idealism has abstracted sensible properties from the "nature" of things and limited our right to claim "knowledge" for anything but this sensible "experience," insisting that which transcends this fact cannot be called by the same name as the sensible reality, if nameable at all. When the idealist discovered the subjectivity of certain significant facts

he at once set about examining its consequences. His opponent never did so. The materialist has not been careful of the conceptions which he used in the construction of his theory. When certain facts have pressed upon him the relativity and phenomenality of his "experience" he has accepted this view without asking any questions about the remainder of the facts in the same field. Thus Epicurus admitted the subjectivity of color perception, meaning that color, as we perceive it, did not correctly represent the qualitative nature of the object that acted on the organism, but was the effect of the subject in reaction. All this was familiar to Plato and the Sophists, but it did not occur to the materialists that the same treatment might be accorded to the "perception" of *motion*. After discovering that sensible qualities were "phenomenal" or relative to the subject, they still went on with the assumption that motion was not "phenomenal," and materialists ever since have failed to see that their conception of motion was chargeable with being subjective quite as much as color or sound, and that, if the abstraction of such facts from the "nature" of objective reality necessitates the description of that reality in terms of what had been supposed before, then the materialistic point of view has to surrender to the immaterialistic. This is to say, that the antithesis between the subjective and objective, if granted at all, must be extended to the whole field of sensory determinations, and if the materialistic view is to be conceived as convertible with sensible conceptions of reality, the supersensible, if distinguishable from it, must be treated as immaterialistic. This, of course, is precisely the contention of idealism which insists, implicitly or explicitly, that there is no identity between the subjective and the objective as apparent, no transmission or *influxus physicus* of the external into the internal, and hence excludes the right to describe them in terms implying their identity. The materialist identifies them and may consistently identify them, provided that he constructs a theory of the relation between the subjective and objective that either makes that identity intelligible or qualifies the antithesis by limitations which will permit the application of some of our terms and conceptions to a reality which is not sensible. The materialist makes this application of concepts to the supersensible, but he forgets that, in doing so, he often has to admit the same difference between the supersensible and the sensible which the idealist insists upon as a ground for applying terms implying an antithesis. That is to say, the materialist is forced to accept the antithesis between the sensible and the supersensible, the difference between the abstract reality accepted as the ground of events and the concrete

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"phenomenon" which is regarded as the symbol of its presence and ought to see, when he accepts the fact, that the opposition between his position and that of the idealist is not what it was supposed to be, and that a little critical analysis of his concept of motion might prove that he has "dematerialized" this conception and that it no longer represents the sensible fact which he assumes in his argument and theories. He starts with the sensible fact called "motion," which he defines as a change in place, and then turns up at the end with the same term applied to real or alleged facts, such as the undulations of heat, light and electricity, which can have no sensible meaning whatever and which are quite as supersensible as the atoms and molecules which they are especially careful to describe as excluding all sensible verification and "perception." The supersensible nature of their reality, whether of substance and its activities, whether of matter or motion, especially in the dynamic theory of matter, is concealed by the fact that its concepts are never exposed to the criticism and analysis which are supposed to characterize the functions of philosophy and not of science, so that all sorts of contradictions are held together in scientific systems, partly because science is not made adequately responsible for consistency in the crude metaphysics assumed at its basis and partly because idealism has been too haughty to discuss the problems of philosophy in any terms but those which could not be understood by science and that would not offend any more than they would enlighten religion. But the moment that materialistic science required to give an explanation of a fact in terms of the known, it seized upon the concept of "motion," generalized it, thus making it abstract, and then described it as representing the "nature" of supersensible conditions, where almost anything can be said with impunity, because it can neither be verified nor disproved, unless the antithesis with which it starts is modified. The materialist has unconsciously performed the same abstraction as the idealist and landed in precisely the same position, the only difference being that he clings for dear life to a terminology associated with sensory "experience," while the idealist adopts the language of intellectualism and evades the suspicion of agreement with materialism only because of his language which still carries with it the implications of the dualism which he strenuously denies.

I must remind the reader, however, that the difficulty with materialism which I have just discussed is not fatal to all forms of the theory. I have only been showing that, when its position with regard to fundamental conceptions has been critically examined, it is not found

to be different from idealism which so rigorously opposes it. The materialism which cannot be so easily attacked is that which frankly uses the term "matter" to denote supersensible reality, and explains "phenomena" as functional resultants of composition, while it does not care what we choose to call this reality. I have already shown that it would not alter the problem of the nature and limits of consciousness in the slightest, if we called this supersensible reality "spirits" and yet treated all qualities as functional resultants of their composition. The problem is not effected by the name that we shall give to ultimate reality, but by the relation of "phenomena" to it, whatever its name. Hence materialism in all its real import will not be refuted by dialectical criticism of its conception of "motion," or of its sensible terminology, but only by showing that consciousness is not a functional consequence of composition. But nevertheless, it is a step in the direction of either harmony or of its refutation, if we show that it accepts an antithesis between the subjective or objective in its estimation of the sensible world and does not carry out this antithesis consistently. If we can show that there is much the same difference, perhaps absolutely the same difference, between its sensible "matter" and its supersensible "matter" that the idealist, on the one hand, supposes between "appearance" and "reality," and that the spiritualist, on the other, supposes between "matter" and "spirit," we shall do much to open the way, not only to conciliation, but also to some rational reconstruction of philosophy consistently with the achievements of science. The materialist's advantage lies in his use of terms which he does not criticise and his appeal to the concrete and sensible, while he neglects to notice or to point out that his "real" world of existence, causal agency, etc., is not sensible at all, but something quite as supersensible as the "reality" of his opponents, though he goes on making affirmations that are intelligible only on the assumption that he is dealing with a sensible world, whose antithesis with the supersensible is concealed by an identity of terms and yet resorted to whenever he gets into trouble with any conscious conception of their identity. But if in reality there is an antithesis between the sensible facts which he is explaining and the reality supposed to explain them; if, for instance, to be concrete, there is an antithesis or difference in kind between sensible motion and the "motion" to which the materialist appeals for explanation of facts and which is purely supersensible, the distinction here involved between the two facts, the visible and invisible, the tangible and intangible, the audible and inaudible, etc., may possibly be treated as implying that we have no more right to describe both of

them in terms of "motion" than we have to apply the term color with an identical import to the sensation and to the vibrations supposed to instigate it. Supersensible "motion" is therefore not "motion" at all, when measured in terms of the sensible fact, or if we so denominate it, we cannot apply the term to the sensible fact, unless we can qualify the antithesis with which we start. In either case we have transcended the sensible "phenomenon" in a way that identifies the materialist's conception of the case with that of his opponents. The ultimate nature of phenomenal "reality" is not "motion" as we know it sensibly, even though it may prove to have elements of similarity in it with what we "know," so that the materialist ought not to have any trouble in supposing the possibility that it is consciousness. The materialist is in a dilemma here. If motion is a purely sensible determination, consciousness and motion are identical and "reality" is in antithesis to both. If it is supersensible, there is no way to exclude the possibility that it is consciousness, and he has to conceive it precisely as the idealist and spiritualist wish to conceive it, namely, as not motional in the sensible implications of the term. On the one hand, therefore, this possibility of identity between the two conceptions would indicate that we might call consciousness a mode of motion, provided that we kept clear the fact that we conceived it as supersensible and not a sensible "phenomenon," and on the other, the antithesis, if granted, puts consciousness beyond the materialist's explanation. The only difficulty that we should have to meet in the identification of the supersensible with motion would be that of getting those who have not recognized this supersensible application of the term to eliminate the associations and implications of the term in sensible "experience." But apart from this purely verbal difficulty the materialist is in fact too nearly in agreement with his opponents to justify the animosities of his position.

8. There is another fact which results in a complete annihilation of the old materialistic theory and leaves nothing behind it but the name. It is the vortex-atom theory, and possibly also the new theory that the previously assumed atom is not simple at all, but a very highly complex thing, a compound of "ions," "electrons," etc., whatever these mysterious entities are. But the vortex-atom theory of matter was and is an attempt to reduce matter to a differentiated form of ether. The supposition of the existence of ether has been demanded on the ground that various "phenomena" like heat, light, magnetism and electricity require some such reality distinct from the solid universe for the propagation of their vibrations. This ether has been described in terms that

are completely the negative of *matter*. It has not a single property by which we define material existence, except extension, and this is not properly a property of matter. It is universally distributed through space, not subject to the law of gravitation, perfectly penetrable, supersensible in all its conditions, and so without a single indication of identity even with supersensible matter. It can be described only in negative terms. Sir Oliver Lodge distinctly affirmed that this reality was different from matter. Now we are asked to regard "matter" as constituted by vortex-atoms of this ether, units of that which is not "matter" at all! At other times the materialist contradicts this position by defining ether as a form of matter, in which the generic conception is not ether, while in the former case this conception is ether. But in any case the term "matter" has to be so generalized and the abstraction of such qualities as we know in matter carried so far that the conception has no controversial capacity in the discussion of problems like the nature and destiny of mind. Such a conception of "matter" can oppose neither idealism nor spiritualism. We find in this conception an actual return to the doctrine that "matter" is a created and "phenomenal" thing, even in its atomic form, and something transcending its nature is assumed at the background of the universe, so that there is nothing left of the old materialism but the name, while disputants on both sides imitate the "heroes of Valhalla who are forever hewing down shadows that only spring up again to renew their ceaseless and bloodless conflict."

The elasticity of materialism, in the use of language and in illustration from fact, is so great that no man without the sense of humor will easily discover the weak points in its armor. Fortunately for it the progress of knowledge in refining the conception of matter has associated with it such a wonderful range of capacity and function for producing delicate effects rivaling the mysteries of mind, that it may easily retain the apparent consistency of its philosophy with every change of its mask. But if the antagonistic theory could restrain the traditional habit of contradiction and seize the opportunities offered by the appropriation of the materialist's own conceptions, it might bring the enemy in a captive on its own terms, even if its only weapon is faith, since the elastic possibilities of the material world transcend all that theology could ever have concretely imagined in the world of spirit. But it is extremely unfortunate that the enmity is so hereditary, that it conceals the actual commerce of supersensible reality which determines the legitimate province of both world views. I cannot, however, enter into any positive defense of the spiritualistic

theory, as there can be only one conclusive proof of it in the face of the materialistic elasticity indicated and the simple nature of the evidential problem, and this is the proof of actual survival after death. That is a scientific, and not what is usually called a philosophic problem. Philosophy will have to learn humility and to admit its limitations, and that its assurances are bounded by the achievements of the experimental sciences. All that a work of this kind can effect is a critic of materialistic dogmatism, with an indication of the direction which investigation and reflection must take in the hope of a solution of the question and the realization of its ideals.

Summary.

I may briefly summarize the facts which make a spiritual view of man's consciousness and its survival possible. The facts indicated will not prove it, but they will show that tendency of physical science which unmistakably indicates a conception of matter quite consistent with the ancient notion of spirit instead of excluding it, and makes it merely a question of the kind of facts in our possession whether we have not evidence of discarnate existence. Whether we have any such evidence is not the claim in this work, but only that physical science not only has nothing to contradict the acquisition of such evidence, but actually provides a condition of things that implies its possibility.

1. The first thing to remark is the fact that the whole superstructure of modern physical science rests upon a supersensible world. This was even true of ancient Greek thought in spite of its opposition to the Christian spiritual system. The atomic doctrine represented the elements as wholly supersensible and its advocates called it matter simply because Greek thought was based upon material causation or the principle of identity in the explanation of things. In so far as the manner of conceiving the atoms in relation to sense was concerned it might as well have called its elements "spirit" as to have called them matter. But this would have troubled its imagination in the use of its favorite maxim of causation. Hence the supersensible world was called matter in spite of its non-sensory character. "Spirit," therefore, if it comprehended any facts not explicable by either sensible or supersensible "matter," had to describe itself as "immaterial," as we find was actually the case in the speculative philosophy of Christianity. But at first it was practically identical with the supersensible of materialism, as is apparent in the Epicurean doctrine of the soul and the Christian doctrine of the resurrection of the "spiritual" body.

2. The modern conception of matter is still more a departure from

the ancient theory and in some sense also a departure from that which was held for several previous centuries. The doctrine of the indestructibility of matter was a return to the ancient view that "matter" was the one eternal reality and all else was its phenomenon. Matter took the place of God in the Christian scheme. But the reduction of matter to vortex atoms of ether, and later to a form of electrical energy composed of "electrons" and "ions" are conceptions that assume it to be evanescent and perishable, or at least creatable. No application of the term "matter" to these ultimates out of which it is presumably created or evolved can be made without abandoning the antithesis between "matter" and "spirit" as they were anciently conceived, or even down to very recent times.

3. The existence of ether as a substance or reality which exhibits none of the sensible or other properties of matter, save extension, is also a refinement of the conceptions of metaphysics that either assumes something immaterial or extends the idea of "matter" so generally that it again offers no important opposition to that of "spirit" as merely the "immaterial." Besides the fact that not even gravity or weight is predicated of the ether is one that justifies objection to calling it "matter," unless we abandon the old implications of antithesis to "spirit" as once understood.

4. The supersensible world of X-rays, radioactive energies, Hertzian waves, and perhaps N-rays, is the admission of a vast cosmos of energies that do not exhibit any direct evidence of their existence, but that prove this by their effects in the sensible world. The establishment of this supersensible world simply breaks down the old sensational materialism finally, though it may have survived the catastrophe of the difficulties previously mentioned. The possibility of "spirit" in any sense cannot be denied after the admission of these supersensible agencies, because they extend the limits of the material so far beyond what they have previously been supposed that the immaterial will be but a question of the word employed to describe the real nature of things.

5. The supposed inconvertibility of physical and mental phenomena, though consistent with the materialistic theory in one conception of causality, namely, that of efficient causality, is not consistent with that of material causality, and if materialism were convertible with this latter view it would be wholly incompatible with the view that consciousness is a functional epiphenomenon. In any case this assumed inconvertibility of the physical and mental makes it possible to suppose another subject for the mental than the physical or-

ganism, and would make it necessary were we to deny an efficient causal nexus between the two series.

6. If such a thing as the soul actually exists either as a "fine material" organism, after the conception of the Epicureans, or as an ethereal organism, or as the theosophists' "astral body," we might well use the principle involved in the indestructibility of matter to suggest the survival of the soul after death. The only question that would remain is whether its identity, that is, personal identity, also survived. It is assumed in the indestructibility of matter that it undergoes various transformations in its changes and multiform compositions and syntheses. Two facts, however, seem to show that matter retains its identity in all its metamorphoses and compositions. The first is that it never loses any weight or gravity in any of its changes of form. Whatever change of other properties or function occurs this one property remains unaltered, and if it did not remain so, there would be no evidence of indestructibility. This retention of its absolute identity in one respect or in one essential characteristic is absolutely necessary to the proof of indestructibility and is the fact that constitutes its identity in change. On this assumption and analogy the soul might retain its function of consciousness without being affected by the change called death. There is no proof of it in the mere fact of indestructibility, especially that many properties and functions seem to be destroyed by dissolution of compounds, and it must be a question of evidence to determine whether any particular function is evanescent. The second fact is that the elements retain their identity, according to physical scientists, throughout all their changes and are apparently modified only in combination. But even here isomorphism and the similar effects of an element in various compounds suggests some characteristic of identity in combinations. And further the important fact that, in the law of Mendelejeff the elements are classified according to relations of specific gravity and other associated properties, which suggest an origin from some ultimate single substance, is one that indicates an identity of some kind at the basis of all phenomenal action. The existence and survival of a soul would thus carry the presumption of possible identity in its migration from the organism. All that would be wanting to prove it would be evidence of this identity in fact. Even in allotropism and isomerism some elements of identity remain, so that everywhere that indestructibility exhibits itself there is the possibility of some functional identity remaining independent of change and accident.

7. The history of the localization of brain functions rather suggests

the existence of an agency other than the brain to account for the phenomena of consciousness. Some of the Greeks naïvely believed that the soul was situated in the stomach, others in the heart. But later men came to believe that it was situated in the brain. The older view conceived its particular seat as its organ. That is, the stomach or heart was supposed to be the instrument by which it revealed its existence, and so assumed that the soul was not a function of that particular center. But the moment that modern physiology located the soul in the brain and made other centers dependent upon it, the consequence was that, whatever functions were exercised by other centers, they were initiated from without. The stomach and heart, in this new view, do not originate their functional activities, but derive their impulses from the brain centers. This is in accordance with the general doctrine of inertia. But it was still assumed that the brain could originate functional action as a center wherever the theory of materialism existed and which supposed that all consciousness was a function of the brain and not a function of some other agent associated with the brain. This general conception of brain function was worked out in detail first by phrenology and later in a different way by the physiology of brain functions definitely and specifically localized, but in a manner nullifying the opinions of phrenology. Later, however, this doctrine of localization has been so modified as to indicate that the brain as a whole functions in consciousness. But this view is followed by a later doctrine that the brain and its centers are merely points through which energy flows in the manifestation of consciousness. This is an abandonment of the idea that the brain originates the functional activities manifested in consciousness, and extends the doctrine of inertia still farther, so that consciousness, as a function, seems to arise from without the brain and simply manifests its existence by its effects in the physical organism or the physical universe. This assumes that, in all organisms, action is initiated from without, and so implies the existence of an agent foreign to the body. All that has to be done after this is to apply the doctrine of the indestructibility of matter or energy to maintain the possibility that this agent can exist independently of the organism and after its dissolution. We should only have to seek evidence of personal identity to indicate that it was a fact and not merely a possibility. I do not say that the latest theory of brain functions is correct. It may not be so. I only indicate that the physiologist who adopts it has to face a conclusion which was not consistent with the earlier conceptions of his science.

8. That the whole question turns upon the evidence for the con-

tinuity of consciousness or functional personal identity will be apparent from several facts. (*a*) In the dissolution of all compounds some characteristic is apparently wholly lost. For instance, the power of water to quench fire is not retained in its elements. Hence the indestructibility of matter leaves open the question whether consciousness is an accident of composition or a fundamental attribute of an organism or monad that survives change. (*b*) The evidence for the retention of identity in phenomenal changes as represented by the conservation of energy is not so clear as in the indestructibility of matter. The retention of gravity is the evidence of this in the doctrine of the indestructibility of matter, but in the phenomena illustrating the conservation (correlation, as shown above is the better conception for the facts) of energy there is not always the evidence, if it ever exists, that one of the terms is converted into the other in any way to involve identity of kind in functional action. Hence qualitatively the conservation of energy is an undecided doctrine, and is so undetermined that some will tell us that it is only the quantity of energy that remains the same. Assuming, therefore, that qualitatively there is a change we find that the facts would seem to imply that consciousness, if any attempt were made to bring it under the conservation of energy, would not retain its identity in any transformation of which it might be conceived as capable. If the conservation of energy be true qualitatively the retention of its identity would follow as a necessity and the problem of a future life solved within the domain of physics. But it is the doubt about this continuity in kind that makes it necessary to prove personal identity as a *fact* to assure ourselves either that the conservation of energy favors the belief or that it is true independently of that doctrine. The problem thus becomes scientific rather than philosophic.

CHAPTER XII.

THE EXISTENCE OF GOD.

The layman never fully realizes the vastness of his problem when he begins to discuss the existence of God. He is not even aware of the various influences that make it a problem for him; but between a semi-philosophic mood on the nature of things and a moral interest in the dispensation of a system forcing upon him the sense of dependence and inviting curiosity in regard to his destiny, he invokes a conception that hovers about the horizon of history and hope with all the haze and majesty of both poetry and religion, seeking a justification at the hands of philosophy. He only discovers his exposure to illusion when he begins to criticize what poetry never understands and never pretends to take as real. The progress of intelligence involves him in questions of doubt and assertion which are not on the surface of his reflections, while both his poetry and religion have only followed the lead of fancy after science had formed systematic and supersensible conceptions of the world. The unity of nature was the precursor of a revolution in other ideas. The original impulses of mankind seem not to have troubled the imagination with any single sovereignty over the processes of "nature" except that of Fate. The gods were as numerous as the elements and it was only when the unity of the cosmos forced itself upon conviction that the divine also assumed a monotheistic conception. In Greek thought this did not take the form of a creator of the world, but only of its providential ordering. Matter was conceived as coeternal with God, but subject to his plastic hand as a disposer except in the Epicurean system where the gods had to be relegated to the *intermundia* in order to eliminate their caprices from disturbing the proper order of nature and for the purpose of rendering them harmless, so that there could be no motive for the interference of divine power. Only in some of the best poets did the conception of Jupiter take on characteristics inviting to respect and reverence. The minor gods and all conceptions of the divine in general parlance represented a system of tyrannical and irresponsible agencies without moral character or human interest and no better, or even worse, than the order of nature. This could be reckoned with for regularity, but the gods never. This unideal character of the divine exhibited itself wherever polytheism pre-

vailed and it was the moralization of man beyond and above the conception of the gods that gave scepticism its sting when it attacked their existence. Power without morality was the conception which described them, as this immunity was the ideal of Greek life, and it reflected itself even in the monotheistic conception, save as this was modified by the higher idea of Æschylus and others. But at no time did the conception of God as primarily interested in man for man's own sake become a prevalent idea of Greek thought. Justice and not mercy was his chief attribute. But, as I have already remarked, Christianity gave the idea a new content and relation. It made God the creator of the cosmos both sensible and supersensible, conceived his relation to it as predetermining its order in behalf of the present and future interest of man, insisted upon his personality, and established such a social relation between himself and his creatures as redounded equally to the honor of the divine as bestower and to the benefit of man as the recipient. Mercy was added to justice as his attribute.

In the manifold exigencies of mediæval civilization and speculation these various conceptions, associated with many details in a providential scheme, worked themselves out into a dogmatic system and became implicated in the nature and validity of many dialectical and metaphysical doctrines of an exceedingly dubious character. It would be no light task merely to trace the development of this movement, and though it would not be wholly thankless, it is not necessary for the purposes of this work to rethresh any barren straw for the small amount of wheat to be found in its chaff. It is possible to traverse the great ideas associated with the name of God and to examine one of the immemorial problems of philosophy without any elaborate historical analysis of mediæval thought. We cannot, however, wholly ignore the setting which it received in the discussions of Kant. That philosopher is supposed to have put an end to legitimate discussion of the problem along the lines of traditional argument and to have left the idea to the irresponsible deliverances of faith and intuition, which no one any longer trusts. I do not think, however, that it was the dialectic treatment of the question by Kant that placed the existence of God among the relics in the museum of antiquities or jeopardized its validity and power. This was only the excuse for influences that no more embodied themselves in logical forms like the antinomies than did Kant's "practical" reasons for the validity of the belief, though they are capable of that organization. The chief factor in the decline of the conception and belief has been the progress of science, and it

was only when the philosopher had to seek some plausible excuse for his indifference to the question, or for his incompetence in the discussion of it, that he sought a defence in the dialectics of Kant. The idea simply died the natural death of miracles and for the same reason, namely, its incompatibility with the facts of science. Mr. Lecky has correctly shown that it was not philosophic argument that was the chief agency in causing the decline of the belief in the supernatural, but it was the gradual elanguescence of it owing to the slow saturation of the public mind with the ideas of science and physical law. It was the same with the belief in the existence of God, and the tribute paid to Kant's antinomies is either an afterthought or ignorance of the real influences at work. The two conceptions which it was difficult to withstand were the indestructibility of matter and the conservation of energy, as dispensing with the necessity of creation in any form. As long as it was assumed that matter and motion were created, that is, had a beginning in time, the conception of God was a necessary complement of it. It was not a question of "ontological," cosmological, or teleological arguments, but of necessary implication in the real or supposed facts with which reflection started. All the rest was a matter of detail rendering intelligible a cosmic order once initiated. But the moment that science proved the persistence of matter in all its changes of form and the conservation of energy in all its transformations, a perfectly definite evasion of the old implication was made possible, and from that time the traditional conception of God was doomed either to extinction or revision. The facts afforded a substitute idea for the explanation of the cosmos, if explanation it be, and the law of parsimony in human thought will not tolerate two rival contestants for the explanation of the same phenomena. The consequence has been that in proportion as the new conception could work itself into the details of cosmic events, extending our ignorance of its plan as much as our knowledge of its laws, just in that proportion has the scholastic idea of God suffered eclipse or gradually retired into that limbo of forgotten intellectual furniture which can no longer excite any but an antiquarian interest. In its place has appeared the conception of "Nature" and its "laws." Personality and providence have disappeared behind the clouds of science and an impersonal order substituted for divine beneficence. The conception of "Nature," as a substitute, will not bear analysis, because it is a name for a fact, not for a cause. But it is convenient for limiting the pretensions of knowledge where the temptations of its devotees would be to try the revelation of a rational order for which the evidence is insufficient.

As long as any fixed order is admitted by man, it will check the presumption that desires too readily to personify it; not because that personification is impossible, but because it is either evidentially weak or supports no personality inconsistent with the stability of the cosmic order. If the whole system can be described as an undeviating one no demands can be made on its charity which are inconsistent with the general plan. Hence the idea of "Nature" is a useful one for checking spiritual pride and arrogance, and teaching man that, whatever ideals he cherishes, he must conform his life to an inflexible order. But he is never satisfied with such a system unless he can believe that it is personal. The Greeks were so prepossessed with the idea that personality was capricious and lawless and that nature represented a fateful mechanical order that the Christian obtained his footing by a doctrine of personal creation making the Divine benevolent to compensate for the apparently tragic fixity of nature. Man has had to qualify personality with mercy as a limitation to capriciousness. He can submit with patience and hope to an unchangeable mechanism and to the disappointment of many of his ideals, if he can venture to believe that somehow the process of evolution will respect the chief values which it has itself created. The conception of God was the last effort of philosophy to secure a basis for such hopes, and suffers only because the evidence for them seems less cogent than is desired. In addition to being the supposed cause of the order in which we live and have our being, God is also the idealization of all that man can conceive of the true, the beautiful and the good. This can be said in spite of the hideous dogmas that have been associated with the scheme of Christian belief in some of its forms. If it had not been for this idealization of the concept, man would not have felt so keenly the loss of it attributed to the progress of science and the dialectics of Kant. The progress in his civilization, involving the humanizing of all his instincts and his rising above "nature" while he obeyed it, left behind it that reverence for personality which can never be bestowed upon a mechanical system, whatever source of pleasure and admiration it may represent, and the consequence is that he may never willingly abandon the effort to see in the course of things, which extorts from him so imperiously the feeling of dependence, that rational movement of intelligence and hope which must always color with its own hues his little span of toil and care.

But it is precisely because of this rich personal content that the conception is exposed to the cruelties of criticism. In the order which man himself makes he is a master and his creations form the standard

by which he is wont to judge "nature" that marks with a shadow whatever beneficence it exhibits. Man's moral nature is accustomed to think that it cannot look on that Medusa head and live. The flush of conquest which he feels in his triumphs over physical "nature" will not easily inspire respect for the object that is so plastic to his own will, though the reserve of unconquered power that it shows can still invoke his fear, and he turns, Psyche like, to indulge his curiosity and hope in uncovering Pandora's box only to find that "the earth, green as she looks, rests everywhere on dread foundations were we further down and Pan, to whose music the nymphs dance, has a cry in him that can drive all men distracted." The beautiful vision of poetry and religion in that discovery turns into a waste, and criticism leaves an inheritance of ignorance which it conceals in the name of "Nature." Whether we shall ever get beyond this condition of mind depends as much upon our revision of the traditional conception of "Nature" as upon the revision of that of God. The arguments remain as they always have been, only awaiting the conception and the facts which are to determine the measure of their applicability.

Philosophy has generally conceded the forcefulness of the Kantian antinomies, and in most cases their conclusive influence in favor of agnosticism, which in actual convictions has amounted to a denial. These antinomies were conceived as dividing the arguments equally for and against the infinity of the world in time and space, the freedom of the will, and the existence of God. But I mean here to challenge the solidity of this position. I do not think that any such antinomies exist as Kant affirms. I shall not deny a certain kind of formal difficulty in the discussion of the questions proposed, but it is a perplexity that is created by a total misconception of what the problem of explanation is and of the source of the alleged antinomies. That the antinomies are not so clear can be shown, I think, in the simple fact that an analysis of the concepts which gave Kant his trouble would have dissolved the antinomies into air. They grow wholly out of equivocations in the terms that suggest them. Take the instance of the controversy regarding the finitude and the infinitude of the world. In stating his case Kant should have given us a preliminary conception of what he meant by the "world." The whole force of the antithesis between the two views and the difficulty of obtaining conviction for one side or the other is the equivocal import of the term "world." That term is sometimes used to denote the physical universe *in* space and time and not including space and time themselves. At other times it includes these, and consequently alters the right to apply various predicates to it.

Again the term is often convertible with the *sensible* physical world as distinct both from space and time and from the *supersensible* physical world whether distinct from space and time or not. Now whether finitude or infinitude is predicable of this "world" will depend wholly upon which conception of the term is adopted. If it denotes the sensible universe to the exclusion of space and time, there can be no question whatever of its finitude and the assertion of the possibility of the opposite is preposterous, and simply contrary to fact. Space and time are our sole measures of infinitude and of whatever objects we suppose this attribute we must at the same time assume them coterminous with space or time. The admitted infinitude of space and time from which the sensible world is supposedly excluded in the conception just mentioned settles the question of its finitude once for all. On the other hand, if space and time are included in the conception of the "world" or universe, there can equally be no question of its infinitude, as this character is imposed upon it by the inclusion of space and time in the thing named. Now Kant admits the infinitude of space and time and should have observed that the whole problem of finitude and infinitude was determined solely by the question of their inclusion or exclusion in the conception of the "world" or "universe." The difficulty, of course, arose from the Cartesian and Spinozistic conception of matter which applied to a supersensible reality and was supposed to occupy all space, the sensible "world" being that modification of it apparent to sense. The question that Kant really raised was whether this supersensible "world" was finite or infinite, and he could well resolve that into insoluble alternatives, while he omitted to recognize that it was the sensible "world" that had created the entire problem of philosophy.

The same remarks apply to the question of its beginning in time. If time is a part of the "world" concerned, its beginning is an absurd assumption; if it is not part of the "world," it is not absurd to suppose a beginning for it, but a question of evidence. If, assuming that time is not included in the conception, the "world" is conceived as the sensible world of time, its finite character and its beginning in time is a given fact, and nothing can be more clear than this view on the premises of Kant's own system. For, space and time not being properties of reality *per se* and only "forms of perception," subjective products of the mind, the "material" world of sense had to be both finite and to have a beginning in time. But this way of looking at it as more or less unnecessary as well as unintelligible, the main point is that the exclusion of time from the sensible "world" involves its beginning in that time. The whole of physical science is based upon

the assumption that the sensible "world" had such a beginning. Otherwise its attempt to explain it by an antecedent cause is manifestly absurd. The conception that gives trouble in supposing a beginning is either that which is an abstraction of the various conditions of reality representing a series of phenomena, in which the conception of the "world" would have no meaning, if we made it infinite, or that which tries to comprehend both the sensible and the supersensible "worlds" in its embrace. The "phenomenal world" has a beginning in time or it is not "phenomenal." The permanent element in it, if we may use that expression, has no beginning implied by what is manifestly temporal, except as its cause. We should have to seek independent evidence of its beginning. Kant simply forgot that he was dealing with highly refined abstractions of which nothing can really be said one way or the other. It is only the concrete that is open to determination. The concrete "world" of which we affirm a beginning is that which bears evidence on its face of its being "phenomenal." This evidence may be immediate or inferential, but one or the other, it is the condition for seeking any antecedent fact or cause whatever. If the "world" is the cause, its character, "phenomenal" or "noumenal," cannot be assumed without defining the sense in which "cause" is taken. If it be phenomenal the word is a name for only what is known and that is finite and has a beginning. If it is a name for the noumenal, it is a word for the permanent element in concrete members of a series or congeries of events each of which has a beginning. But in no case can we discuss the problem without recognizing the equivocal nature of our terms.

That Kant did not discover the source of his logical difficulties is all the more remarkable when we examine his observations on some paradoxical statements of the Eleatic Zeno. Plato had chided that philosopher for saying that God (the "world") was neither finite nor infinite, in motion or at rest, or like or unlike anything else. . Kant defends Zeno by first including space in the conception of the "world," a position which enables him to say correctly enough that this left no reality outside of it for comparison. To be like or unlike another requires that at least two should be given, that there should be this other given for comparison, and such could not be assumed when space and its total contents described all possible reality as the whole to which predicates were attachable. Of course, if there is only one thing in existence it cannot be said to be either like or unlike another. But Kant and Zeno secure the correctness of their position only by assuming a conception of their terms which is not in the minds of their

opponents. The "world" of usual parlance is what is in space and time, and generally is only the sensible in them. We can very well ascribe certain definite predicates to this in comparison with such things as space and time. It can be said to be either like or unlike these. Assuming again that the "world" is the "known" sensible "world" a comparison with the "known" supersensible "world" would be possible apart from their relation to space and time. This becomes perfectly apparent from Kant's isolation of the question of this "world's" finitude or infinitude from that of its qualitative comparison with other things. He distinctly and deliberately postpones this question to take up that of the possible comparison of the "world" with something else. He thus obtains the advantage of impressing the reader with his initial correctness and the rest will be supposed to follow. But when he comes to take up the question of the "world's" infinitude he excludes space from it as a part of the necessary conception involved, which he has no right to do, if he still intends to defend Zeno.

The supposed antinomy between determinism and freedom is a palpable absurdity when we consider that Kant finally asserts the fact of free will. His distinction between "phenomenal" and "noumenal" causation, or "empirical" determinism and "transcendental" freedom fools no one but those who love unintelligible phrases. There is no possible antithesis between "phenomenal" and "noumenal" causation. The simple observation that he was dealing with different orders of events or facts, as his own theory of consciousness required him to do, would have eliminated all antithesis between the "causality" of nature and the "causality" of volitions, and in fact the force of his contention for freedom was actually based, consciously or unconsciously, upon this distinction which removed all excuse for supposing any antinomy in the problem of free will. Moreover, his "empirical" or "phenomenal" causation is not causation at all, but mere coexistence and sequence with causal efficiency left out. His advocacy of free action, no matter how it was qualified, involved an absolute beginning of certain "phenomena" in direct opposition to the claims made in discussing the first antinomy. If any events in the system of "phenomena" have a beginning it is only a question of evidence whether all antecedents are not in the same class.

The antinomy about the existence of God is no better than the others. There is a certain impressiveness in both its strength and weakness as seen in the cosmological argument, though this is due to questions not discussed by Kant at all. Its strength appears in the

accepted fact that some things do actually begin in time and that their "cause" is sought in an antecedent fact. Its weakness lies in the supposition that, if any "phenomena" are caused by antecedent "phenomena," there is no possibility of an absolute beginning in time, and that all causation necessarily involves antecedent "phenomena." The actual procedure of science is a regressus to anterior conditions which it treats as the cause of the consequent, but whose further origin it may not investigate or be able to discover, and hence it simply interprets the events which come within the range of experience as links in a chain without end, if it assumes that all antecedents must be "phenomena." It never reaches the prius or initium which the cosmological argument is supposed to demand. But what I shall contend is that the cosmological argument misconceives the whole problem, and that any attempt to reduce the principle of causation to its type must result in giving up causation of any and all kinds whatever. What can be disputed at the outset is the assumption that causation necessarily involves antecedent "phenomena" and it is this assumption alone that gives the cosmological argument all the force which it appears to have. Every cause may be antecedent to its effect, but it is not necessarily an antecedent "phenomenon." Kant shows rather clearly that he would have accepted the claims of the cosmological point of view, if he could have done so free from the logical difficulties which incumber it; for he returns to it again and again and accumulates upon it all the objections that it has to meet. But it is his false conception of causality that creates his difficulties at this point and his failure to realize the immovable importance of the fact that there are "phenomena" representing an absolute beginning in time, a fact that would be impossible on the cosmological conception as it is abstractly represented. Such a fact certainly indicates some limits to the assertion that a finite regressus of phenomena is necessary to the supposition of original causation. If Kant had realized that the principle of causation was not "phenomenal" at all, he could have admitted any regressus that science might require, whether finite or infinite, and have remained undisturbed by the cosmological conception of the problem. In fact, his very conception of free causation required him to place the notion of cause in the transphenomenal, as well as the conception of the reality that was assumed to produce sensation without being sensation. Had he had any right on his system to have a "thing in itself," which he said existed and yet we did not "know," we might effectively eradicate the difficulties which he felt in the cosmological argument; for we have here a conception that defies the

limitations of a finite regressus and which was yet the primary stage and type of causality in the early development of Kant's philosophy. At first his "thing in itself" was the cause of sensations, but this was finally thrown out as a reality unknown and "objects" retained in its place, but never made clear enough to know what they were or meant. A reformed "thing in itself," that is a subject of some kind as the basis of functional action, is what is necessary in the case, one which can exercise the function of causality without being itself a "phenomenon." Had Kant seen this his cosmological argument would have remained in the field of mere "science" where it belongs, this department of investigation being concerned with the *laws* of "phenomena" and their association in antecedence and sequence, not with causal problems primarily or ultimately. It seeks antecedents, but does not require to determine that all antecedents shall be "phenomenal" or whether any of them may be "noumenal" or not, that is, whether they may be subjects giving rise to their own modes of action, such as free wills, Leibnitzian monads, individual centers of reference and action as creations of the Absolute or as modal manifestations of it, or Carlyle's "light sparkles floating in the ether of Deity." On such assumption the cosmological argument would have taken a subordinate place in his system.

I do not criticise his treatment of the "ontological" argument, as that is conclusive enough from the definition and conception of it advanced. Nothing can be clearer than the fact that the "idea" of a thing is no guarantee of its objective reality. The definition and conception of God no more carries with it his existence or the proof of it than the definition and conception of a Centaur guarantees its existence. No sort of logical legerdemain can construe the doctrine in any other way, except by giving a certain specific meaning to the term "idea." I think that it is quite true that Kant's and the usual way of representing this "ontological" argument may not be wholly just to its actual import in the minds of some philosophers. It may rightly characterize the positions of Anselm and Abelard and some of the Wolffians, but it does not correctly represent that of Descartes. This last philosopher did not rest the argument on the mere fact that we have an "idea" of God, such as the "idea" of a Centaur, or of a "Thaler" in one's pocket, but upon the peculiar character of that "idea." It was the necessity of the "idea" which determined the necessity of supposing its objective and existential nature or reference. The "idea" of a Centaur, he would say, could not claim this character. Descartes was, therefore, quite consistent and invulnerable to Kant's criticism,

as remarked by Kuno Fischer in his discussion of Descartes, though we may still have the privilege of disputing the correctness of Descartes' representation of the case. Hence I do not say or imply that Descartes was right in his position, but only that he does not seem to be amenable to Kantian criticism. We may question his view of what the "idea" of God is, namely, a necessary "idea," but once grant its unique character distinct from other "ideas" and the major premise of Kant's representation does not apply. But we may also say, or have said against us, that the Cartesian position is not properly "ontological." Descartes may beg the question, but his position is not refutable by premises founded upon "empirical" conceptions. I think I would quite agree that the basis of the argument is in reality changed by Descartes in his conception of it. It is not strictly "ontological" as that notion is usually defined. Kuno Fischer calls it the "anthropological" argument, conditioning the application of the "ontological" afterward to a necessary "idea." It is described in a way to show that the principle at the basis of it and of the problem of the divine existence is in reality what I should call ætiological. This view of it I conceive to represent the true conception of the Cartesian position and also the correct way to regard the problem, as well as the form of all discussion of reality, not merely the problem of the existence of God, but also that of matter and all other real or supposed substance. The real and primary trouble with the problem as it was conceived by Kant, and by many other doubters and believers alike, was the system of dualism which would not permit the application of causality without distinguishing between that which accounted for physical "phenomena" and that which was necessary to explain mental facts, or between that which justified the belief in the existence of matter and that which would give something else sovereignty over nature. To have conceived the problem of the existence of God and that of matter as the same would have put the problem on a better foundation and to have relieved it of its exposure to the real or imaginary difficulties involved in scepticism generally, even though the solution of the problem was not any more apparent than it was before such an analysis or conception of it was suggested.

The main criticism, however, which can be directed against Kant's treatment of the problem is the fact that he has failed to recognize two distinct questions in it. The first is the synthetic nature of the argument, if I may call it such, and the second is the distinction between the legitimacy of various *methods* of argument and the actual success or failure of their application. By the first of these considerations I

mean that Kant failed to properly analyze the conception of God in its relation to the methods of argument affecting different "moments" in it. He did recognize that the conception of God stood for more than a single predicate or characteristic, but in applying the various arguments for the proof of his existence he failed to note that they were not applicable one and all separately to the same particular result. He criticised the "ontological" argument as if it were sufficient to prove the whole case, if it were legitimate at all. It was the same with the cosmological and teleological arguments. He assumed that they should prove everything or nothing. But I must maintain that they have not been fairly treated. The cosmological argument, if legitimate, is adapted only to the idea of the bare Absolute, and not to intelligence or moral qualities. The teleological argument will not prove an Absolute, but nothing more than intelligence and morality, if the data are present for its successful application. I grant that their weakness, as apparent to the ordinary man, lies in not being sufficient to prove the whole case alone. Nor do I mean to imply by this that, if they have any legitimacy at all, they can in combination effect this end. While I grant that they have a value as methods and would have a different significance if they could severally support distinct aspects of the conception before us, and thus effect a combination that might be useful to philosophical reflection, there are conditions necessary to make them successful which are dependent upon more important considerations than mere legitimacy of method.

What I mean by this last remark can be explained only by an analysis of the conception of God, as it has been employed for many centuries. This I shall express by the characteristics of *causality*, *intelligence*, *and morality*. Whether they are correctly attributable to such a being is not now the question, but whether they do or do not constitute the historical conception with which we are dealing. Kant was aware of its complexity and recognized that the idea stood for both an "*ens realissimum*" and a "highest intelligence." But he made no effort to relate these characteristics to different methods of proof. Moreover he had to do his thinking in an atmosphere which, on one side, was saturated with the monism of Spinoza and, on the other, with the dualism of Descartes. Kant never appreciated the monism of the one and could not accept the dualism of the other. The arguments and conceptions that were adapted to the dualistic views and needs of Christianity had tried to find an adjustment to the physical monism of Spinoza, which had been the result of that scientific movement begun with the indestructibility of matter and motion. In this monistic con-

ception and situation the idea of God had to share in that of matter and spirit combined or be reduced to that of matter alone in some sense of the term, and hence to represent in either case an absolute substance whose modes were its own evolution and not independent realities in some other center of action, even though created by this absolute. Kant, however, was too much infected with the pluralistic view of things as represented by Leibnitz to see clearly where the difficulty arose and too much impressed with the strength of the mechanical view of nature to escape these difficulties, and hence his trouble with the cosmological argument. Besides the place which the conception of a "necessary being" occupied in Kant's discussion of the problem, as well as his infatuation for "necessary" and "*a priori*" truths, shows how he was infected with the Spinozistic conception which had become wholly divested of the facts and assumptions which had originally given rise to it, namely, the phenomenal universe and its demand for a causal ground. The "necessity" for believing in this ground, as determined by the assumption of its phenomenal nature, came to be applied to its temporal and "phenomenal" origin rather than to the obligation to suppose it as the complement of a "phenomenal" order. The only "necessity" in the case is epistemological, not metaphysical, as that has often been conceived, and hence is wholly conditioned upon the assumption of "phenomena" that imply it but do not determine it. But at the time of Kant philosophy had lost the conception of "nature" which necessitated the notion of a Creator and it was of course quite natural to raise the question of his existence. The new position of science divided the eternal between matter and spirit with no evidence of the latter, and left no room for the unity which the philosophic mind demanded, except in materialism, and the consequence was that Kant had to choose between the persistence of force and a reality which could claim nothing but "ontological" evidence in lieu of the ætiological which fell to matter.

I shall not go into any minute historical criticism to establish this point against Kant. I intend to content myself with the general observation that the conception of this transition period was not qualified to represent rightly the problem which the question regarding the existence of God presents. It was burdened with a heritage which had not made itself clear in its relation to the new scientific movement. It was the traditional conception of cosmic views that were associated with a theory of creation and that appeared irretrievably shattered by the indestructibility of matter and motion, that originated the perplexities felt. Dualism still persisted after the excuse for its existence had

been removed, and the conception of God seemed to be as superfluous as the Epicurean divinities in the *intermundia*. Kant's perplexity in this situation was certainly pardonable. But I think that we shall wholly miss the proper point of view in the question if we either accept his statement of it or treat his view as anything more than the confusion of a transitional stage, a period infected with the antithesis between matter and spirit and the contradictions of a providential scheme which made the cosmos divine while it repudiated matter as a moral contamination, a blotch on the otherwise fair features of existence. Having accepted the *deus ex machina* theism of Aristotle which allowed for the self-evolution of a material system once created, the theistic doctrine was now face to face with a material and mechanical order that had finally dispensed with the need of a specific creation by means of the persistence of matter and motion and the existence of a whole system of internal "forces," a position that forced either the abandonment or the reconstruction of the conception of the divine. The Aristotelian first cause seemed no longer necessary as the prius in a finite series of regressus or events, and speculation was left with an inert eternal in matter and motion to struggle with the problem of evolution and change as best it could. Science did not know what it had to meet in this relation between inertia and change and philosophy was reluctant to put its finger on a *creatio continua* doctrine because it was frightened at the bugbear of Pantheism. Hence Kant and philosophy were confronted with that condition which made the existence of an extra-material cause unnecessary for the initiation of a series that never began, and as they did not feel sufficiently the significance of the fact of change they were not disposed, because of the traditional conceptions of transcendental reality, to place the initiation *in* the system with which it was dealing, since the immemorial doctrine of inertia stood in the way with all the force of both an axiom and a tradition. The Aristotelian and scholastic doctrines required only a *first* cause, a prime mover of a system that needed no further regulation or interference after its creation or disposition, but the final success of materialism made it necessary either to abandon all hope of the divine or to find it immanent in the system. Finding the divine, as prevalently conceived to be unnecessary, Kant had to make it a "thing in itself" and place it, like the Epicurean gods outside the material system, in order to avoid denying it altogether. It did not occur to him that he could reconstruct the problem so that its first motive would not be the cosmological conception and its first argument the "ontological," but a principle which would account for the *constancy* of change, not the

primordial initiation of a system which was abandoned to an inertia actually incompatible with evolution.

This last remark indicates the point of view from which the problem has to be considered. It is the modern conception of evolution and change which are perpetual, not occasional, and the still more important conception of uniting the causes of "phenomena" in the same subject or same kind of subject, that predetermines the manner of discussing the existence of God. The place of cosmological conceptions in this scheme will be considered again, but it must be remarked here that they take a secondary and not the primary place in it.

I have said that the conception of God represents the ideas of cause, of intelligence and of morality as the basis of cosmic action, and the question next is whether there are adequate reasons for supposing any such agency responsible for the order which we observe. But I can neither give a direct answer to this question nor enter upon its discussion until I know whether I am asked to prove or deny something else than a supersensible physical reality. The crux of all difficulties in this perplexing problem is not in the conceptions which I have said define the idea of God for us, but it is the far more important question of their relation to the body of scientific knowledge in our possession. This was a question which hardly had any existence in early Christian thought owing to that imperfect knowledge of "nature" which still left so large a field to possible miracle or irregularity, and the generally accepted dualism of the time. As long as the material universe, sensible and supersensible, was regarded as an absolutely created thing, the conception of God added, as necessary to it, the notion of immateriality to those which I have mentioned, and hence the evidence for God's existence would have to be found in considerations which implied his distinction from the universe as well as displaying the qualities of causality, intelligence and moral character. The existence of some such power was necessarily implicated in the assumption that the cosmos was an effect, a "phenomenal" and obedient thing. This assumption may not have been well founded. With that I have nothing to do, when estimating the consequences of it once made. The assumption made no other argument necessary, and if the term "ontological" could be adapted to such a situation the argument by that name would be valid and conclusive still. I would prefer to call it ætiological, as we shall observe later. But the situation which commanded the inference or implication was completely altered by the return to the scientific conception of the indestructibility of matter without any alteration of the conception of the divine, itself

only a necessary implication of the destructibility of matter. If we could discuss the question in terms of matter, asking whether personality might not be a function of the supersensible background which science assumes for its material "phenomena," the problem would offer fewer *a priori* difficulties. But the situation, as defined by the present condition of science and the persistence of dualistic assumptions about God, requires us to suppose a material substratum for the cosmos that is divested of personality and in addition the assumption of a personal reality for whom there was supposed to be no need in science, but for whom we have been taught a moral need that apparently has no intimate connection with the physical order. What proof is possible of such an independent being must be a matter of debate, especially as the newer views of the cosmos make that proof different from that of antiquity. The absence of evidence for a causal relation to the origin of the cosmos and the moral demand for a teleological meaning in the system of things would place the latter conception at the mercy of the former, as it did in Kant, and the scientific requirement for causality as prior to purposive relations is too strong to permit the moral argument any weight in the absence of that causality which has to be initiative. The choice thus seems to lie between materialism with its supposed atheism and the defense of theism on the ground of transcendency. Theology has not permitted any reconstruction by noting the tendency of speculation to dematerialize matter, that is, refine the old conceptions until there is practically no distinction between "matter" and spirit as once conceived, but persists in making the causal intelligence, which it calls God, an agent distinct from all matter whatsoever, and so conceived it is impossible to make it intelligible or to suppose it capable of representing any causal action in the cosmos. When, therefore, any man is called upon to express his convictions about the existence of God, he is confronted with the assumption that this causal agent can in no case be identified with any reality like matter. It is not enough to believe that there is intelligent causality in the cosmic system, but it is demanded that we place that intelligent cause outside the system which it did not create and which we are simultaneously told neither shows evidence of intelligence and morality nor requires a creative force to make its existence and action intelligible. This simply results in what might be called an irretrievable dualism. There is no objection to a dualism of realities that show some reciprocity of action and relation to each other. But a dualism which both connects and separates distinct realities is either absurd or represents a paradox and must give exceptionally good reasons for that

mode of speech. There could hardly be anything more than a mechanical relation between two eternal and independent realities, if they can be gotten into relation at all, and the very theory of creation requires it to be more than mechanical. The evidence of the divine existence might be more apparent, if the relation were merely mechanical, but, assuming the divine as the creator of the system, the responsibility for its outcome would be greater, while the dynamic character of its working would more effectually conceal the motives that govern it, a fact which is sufficiently concealed in the mechanical system. But in a cosmos which found God only a disposer of its order and not necessarily the only agent concerned in its activity, the only argument that could discover his presence in it would be the teleological, and cosmological considerations of the scholastic type would have no place in the evidence. That is, efficient and material causes in the system and supposed to dispense with the idea of a creator of anything whatever, might suffice to account for all but its teleology, and the consequence would be that "nature" would have nothing divine *in* it but only outside its realm, while the unity of the system would be sacrificed to the necessity of finding the divine outside the machinery by which it accomplishes its purpose and reveals itself, and so would prevent the determination of its character by excluding from its nature the expression of what we actually observe and admire without tracing its causality there. This is to say that the fundamental difficulty of the ordinary theism is that it insists so radically upon the transcendency of God in its cosmological conception of creation, while it admits the action of "secondary" causes, that between what "nature" is supposed to do of herself and what is left for providence, the opposition between matter and spirit becomes that between good and evil, as determined by the abstraction of the divine from the order which he is assumed to have made.

In regard to this conception that the world was created by God and then left to itself, Lotze makes a clear statement. He says: "I will not urge the objection that this view provides only a limited satisfaction to our feelings; in its scientific aspect it is unintelligible to me. I do not understand what is meant by the picture of God withdrawing from the world that he has created, and leaving it to follow its own course. That is intelligible in a human artificer, who leaves his work when it is finished and trusts for its maintenance to the universal laws of nature, laws which he did not make himself, and which not he, but another for him, maintains in operation. But in the case of God I cannot conceive what this cunningly contrived creation of a self-

sustaining order of nature could be; nor do I see what distinction there can be between this view and the view that God at each moment wills the same order, and preserves it by this very identity of will. The immanence of God in the course of nature could not, therefore, be escaped from by this theory; if nature follows mechanical laws, it is the divine action itself, which, as we are accustomed to say, *obeys* those laws, but which really at each moment creates them. For they could not have existed prior to God as a code to which he accommodated himself; they can only be the expression to us of the mode of his work."

Having decided that the question of the existence of God involves an insistence upon the condition that ultimately the causality of the cosmos shall be one, either as a creator of material substance or identical with it, we come to the consideration of the three subordinate issues that arise and which were mentioned as implied by the term God, namely, causality, intelligence and morality. But the argument which will prove each of these characteristics is not materially the same. The process is what I shall call a synthetic one. This means that each predicate must be added on to the preceding one, so that the proof of the prior characteristic will not involve a deductive inference to the latter qualities. Different concrete facts are involved in the attainment of the complex result. But the primary point to be observed in the process is that it must not begin with the assumption of any radical severance of the idea of God, in its first "moment," from that of the immediate background of "nature." I mean to insist upon a closer relation between the supersensible of Greek thought and the superphysical or immaterial, if you like, the supernatural, of Christian thought. If the argument requires it, I would interpose no objections to their absolute identification. This would not mean, however, that we should adopt the Greek conceptions historically understood, but that we may eliminate the triple distinction between the sensible and the supersensible, between the supersensible and the superphysical, and between the sensible and the superphysical. I shall not assume *a priori*, however, that this identification is the quæsitum with which we must start our inquiries, even though the necessity of it is a fact. The investigation is too complicated to justify the anticipation of too much in our major premise. It may be that we should be justified in assuming that there is more in the background of "nature" than material reality, but the most obtrusive evidence of this view may not guarantee more than the simplest of predicates, and we may require more complicated evidence for those which give refinement and moral

importance to what is represented by the idealized conception of God. Though I mean to abolish that unfortunate dualism between the supersensible and the superphysical, as it has been historically conceived, I do not mean to eliminate the possible meaning which that dualism represented. All that I wish to do is to obtain a point of view by which the common conceptions incident to traditionally antagonistic schools may be brought forward and the follies of their hereditary religious feuds exposed. The only way to do this is to show the elasticity of the conceptions which have served as competitors of the religious idea in the past and which have appropriated its territory and forced it into a region where it is without the facts in the support that it once had. Conciliation is possible only on the condition that the opposition between the two schools of thought is not what it seems superficially.

I have said nothing about the conception of God as a "first" cause. I have purposely evaded this matter in the discussion thus far because the primary question is whether there is any cause of "phenomena" at all and because the cosmological conception of the problem misapprehends its primary nature in that the idea of cause with which it starts is that of "phenomenal" antecedence and consequence and tries to get a "first" cause in this way when it is impossible. I have already indicated how this notion arises, when discussing the ætiological and ontological problems (p. 37) that constitute the province of noumenology. I may now refer to that discussion as forecasting the way in which we have to view the application of causality to the problem of God's existence. I do not dispute the existence of a cosmological problem in this connection, but it is not the prior question of speculation. It arises only when we have a world of at least numerically different realities in interaction with each other and when we assume the doctrine of inertia as applied to the realities in this interaction. Outside these assumptions the conception of a "first" cause has no such claim to prior importance as that which Kant gave it. The existence of a subject initiating its own actions is not only prior to the idea of that involved in external initiation, but it does not require us to assume the finitude of the series of events concerned as the condition of obtaining a cause or "first" cause. It is only when there is a plurality of realities of an inert type and dependent upon external action for the occurrence of events in the subject acted on that we get the idea of "phenomenal" antecedence and consequence as representing causality. But even when the cosmological conception was accepted as temporally necessary its value lay wholly in the real or

apparent denial of an infinite series of phenomena in sequential form. Of course, if the series is finite and causality has to be assumed the antecedent is not a "phenomenon," so that the whole value of the cosmological argument depended upon the ability to prove that the series was finite. But in addition to the difficulty of sustaining this finitude of the series, those who so strenuously urged the necessity of a cosmological initium for the cosmic order conceded unwittingly one half of their opponent's view, and this concession was either that of a subsequent eternity of what was once created, or the self-persistence of what was initiated until another act of will terminated the creation dependent upon this will. It was readily granted by the theist and the spiritualist that when a cause once acted to initiate an event the subsequent events in the same series were the effect of this antecedent as a cause. In other words an event once in existence as an effect became a cause and so on indefinitely, all but the first member in the series representing what is known as a "mechanical" cause and effect, which is interpreted *as not involving anything new in existence as the first term is supposed to do*. This assumption was supported by all those facts that are represented in the mechanical transmission of energy and so by the doctrine of its conservation. But it was not true for all those aspects of the members in the series that embodied actual changes of actual mode, and most especially all the qualitative changes not materially traceable to the nature of the antecedent. But in spite of this false assumption the doctrine lived on to embarrass the theist the moment that any serious doubt was raised against the finite character of the series. What should have been done was to have shown that the whole case was independent of the question whether the series was finite or infinite, and that there was no such qualitative identity and freedom from initial change in the system as the mechanical theory conceived it. Besides the abstraction involved in conceiving what the identity is throughout the series leaves nothing but the name of causality for describing the case without its content. The primary conception of causality, as has already been pointed out, is modal change of a subject, not the initiation of a mechanical series in a cosmic system of units or different centers of reference. The first appeal for explanation is to the subject in which an event occurs and we should never transcend it except for such reasons as are implied in the inertia of the subject in action. In fact there are only two considerations that will ever justify this transcendency, and they can be reduced to one. They are the incapacity of the subject to explain certain facts and the doctrine of inertia. The former reason is nothing more

than what is implied by inertia, as there can be no way of proving foreign causality without the assumption of inertia. The existence of inertia defines the limits of subjective capacity and if it is made universal all "phenomena" in a subject must seek their cause in an external source. If the fact external to the subject in any given case and considered as a cause, itself be an effect, and inertia again be assumed, the further cause must be transferred again to another foreign center of reference and so on indefinitely, as long as any given antecedent is conceived as an effect or "phenomenon" as well as a condition of its consequent. We should have an infinite progressus of events as well as an infinite regressus of them. Now neither a regressus nor a progressus of events could take place, according to the doctrine of inertia, unless we have a system of interacting centers of reference, and even with these absolutely no qualitative changes in the transmission of energy or interaction could occur if inertia were absolute. The fact of change in the series shows that we have to deal with a subjective causality that is distinct from the cosmological conception of serial relations.

It is in the conception of inertia and of nothing but a serial relation between events that the cosmological argument for the existence of God arises, and its capacity for giving trouble to the theistic view lies precisely in the difficulty of finding the beginning which the argument is supposed to require. Its finity would, of course, imply a cause different from the members of the series, but with the conception of "phenomenal" causation it was impossible to make clear this finity. Both the theist and the sceptic assumed that causality primarily represented antecedence and consequence between "phenomena," that is, both a distinction in time and transcendency of origin for the effect. But the theist maintained, and according to the historical conception of his theory must maintain, that the series has an absolute beginning, while the sceptic either denies this or finds no satisfactory evidence for its being a fact. It is clear that the theist's conception, in spite of the concession to the idea of "phenomenal causation," assumes that the ultimate cause of the series is non-phenomenal, while the sceptic's implies that it is phenomenal and hence that the series has no beginning. But we may ask the theist why he accepts antecedence and consequence as the norm of causality when he transcends the "phenomenal" for his ultimate, and the sceptic why he supposes any cause at all when he assumes the infinity of the series. Apparently, therefore, the controversy is carried on under a misunderstanding. The two parties have not altogether the same conception of cause throughout

the problem. They agree only in so far as they accept a phenomenal series of antecedents and consequents, and separate when the assumption of one that the series is finite necessitates the transphenomenal that may not be antecedent at all and when the assumption of the other would not permit any antecedent to the infinite series and hence no ultimate cause. The theist's assumption that his "first" cause is only at the beginning of the series instead of continuous or coterminous with it, that is, the initium of each member in it involving a change, exposed him to that conception of the series in all but its initial cause which places him at the mercy of his critic. His theism is that of Aristotle, if we may call Aristotle's conception by that name, since his first cause or prime mover merely started things which went on afterward of their own momentum or forces. Consequently, to the sceptic, it appeared a rather *a priori* position to determine where and when the series began, and the theist has to rely upon the assumption that the infinite is never a sum of the finite to assure himself of any "phenomenal" beginning at all. The fact that we cannot show any definite evidence that the beginning occurred at any specific point and that the "empirical" law of causality, that of "phenomenal" antecedence and consequence, involves the denial of any beginning, seems to eliminate the very condition on which a "first" cause is demanded, namely, that the series shall begin without an antecedent "phenomenon."

The whole trouble is due to confusion in the conception of causality. The theist starts with the admission that, in the finite series which he assumes, the cause is an antecedent "phenomenon" in all but the cause of the first member of the series where he cannot suppose it to be a "phenomenon." It may be either an antecedent, that is, a temporal prius, or a coexistent reality not antecedent at all. He thus shows that his conception of a "first" cause is quite different from any event in the series. Starting with a "phenomenal" conception of cause, though it be only hypothetical, he has to end with the transphenomenal conception of it and makes himself independent of the idea of antecedent "phenomena." There is nothing logically illegitimate in this as long as the idea of causality is assumed and the finite nature of the series admitted to be a fact. But there is a tendency in the concession, for the sake of argument, that the causal agency in the series is not the same as at the beginning, to forget the causal agency necessitated by changes in the series. His opponent starts with the conception of "phenomenal" antecedence for cause and with the supposition that the series is or may be infinite ends with a situation in which he can have no "first" cause as antecedent and must either

forego all causes or accept the doctrine which contradicts the assumption with which he started, namely, that a cause must be an antecedent "phenomenon." Both, however, it will thus be seen, if they are to use the conception of cause at all, have to end with the notion that it is transphenomenal in its primary and most important sense.

It will be important at this point to present some proof that the primary conception of causality must be non-phenomenal. I start with the simple fact that the demand for a cause of any kind is created by the exigency that there are events or "phenomena." That is to say, when we recognize that a given fact is an event we seek a cause for it. Otherwise there is no need for inquiry. Now what is an event? It is a fact which has a beginning in time. The very term implies this. We must suppose a beginning in time for all events whatever, or the facts cannot be called events. It is on the ground of this beginning in time that we look for a cause. Now the cause must be either an antecedent event or something which is not an event. If an event is caused by an antecedent event there must be a series of such events more or less comprehensive. This series must be either finite or infinite. If the series be finite it has a beginning in time and the first event in it must be caused by something not an event, whether antecedent or coexistent with it. Otherwise the series would not be finite but infinite. Its finity and its caused nature, by supposition, assume that the cause is not an event, unless causality be denied for the first member of the series, a position dispensing with the necessity of causality elsewhere, and contradicting the assumption with which we started. But whether antecedent or coexistent it would not be an event. On the other hand, if the series be infinite, it has no beginning in time and there is neither a "first" event in the series nor an antecedent event for its cause. An infinite series cannot have an antecedent event or antecedent of any kind for its cause, but must be conditioned by something which is not an event, if it is caused at all. I do not require to say anything about the impossibility of an infinite series composed of finite units or events. This may be assumed as a vantage ground for discussion to prove that the series must be finite, and so caused by something transcending it and not an event, the same conclusion being true if it is infinite and causality is supposed at all. But we can assume for the sake of argument that an infinite series is possible in order to measure it against the conception of causality. We must remark, however, that, if we apply the category of cause to it, the supposition of this causality will be possible on the ground that it is not an event or an antecedent "phenomenon," because, as re-

marked above, there can be no antecedent to that which has no beginning in time. Hence the series, whether finite or infinite, cannot have an event for its cause. We may maintain that it has no cause, if we so wish to believe or assert. But this would be to surrender the rationality of all science that insists upon the recognition of causality. Its search is not exhausted with mere coexistence and sequence, though this has to be the first step in the ascertainment of cosmological causes. The extent of the connection is the evidence of its necessity, which even the scientific man seeks as well as its factual character. The denial of any causality whatever other than the uniformity of coexistence and sequence may be correct, in so far as we are at present concerned, but human nature is hardly constituted so as to take a course like that. In fact, events have no meaning unless they are interpreted or explained by causes, whether these events be treated individually or collectively. A finite series of events does not differ essentially from an individual event, in so far as it represents a beginning in time, as this is the characteristic that brings it under explanation by causality. We are, therefore, not likely to escape the admission that there is a cause of some kind which will be more than the spontaneous origin of events and which will be a subject or ground of them. The only question that remains after that is whether that cause is ultimately an event. We have found that it cannot be such in either a finite or infinite series, and this conclusion means that the primary notion of cause is not that of a "first" event, nor even necessarily a "first" or temporally antecedent reality not an event, though this might be the fact, but of a reality, whether antecedent or coexistent with its acts, which is not broken up into units of time.

I have assumed, as the student usually does, that an infinite series may be caused. But this assumption requires qualification. That which has no beginning in time can have no temporal or antecedent cause, as we have already seen, since we never seek for a cause except for that which begins in time. The advocate of cosmological infinitude in the temporal series forgets that this idea contradicts his conception of cause as an antecedent "phenomenon" which is impossible in any such series as a whole and it is the whole about which he speaks. Otherwise he has no infinite series. His cause, if cause there be, must be coincident with the facts that he possesses, an immanent principle inhabiting, not excluded from the "phenomena" that come to him for explanation. In no case can we escape the supposition of an Absolute, whether we choose to regard it as noumenal or "phenomenal," while any recognition of causality at all will drive

us into the noumenal. This absolute is forced upon us, because a finite series must be originated by that which is not an event, as a condition of being a finite series of events or effects at all, and because an infinite series can have no antecedent in time. This, of course, results in the conclusion that a true primary cause is not an antecedent phenomenon, but a subject which, whether coincident or antecedent to its attributes and functional action, is the proper center of reference for all phenomena and their true cause, the temporal relation between "phenomena" being only the index of the law of action, not its efficient determinant.

Another matter in this question should be remarked. It is commonly conceded, where there is any serious reflection on the problem, that no sum of the finite can ever constitute the infinite. This is unquestionably true, whenever the infinite is conceived as qualitatively different from the finite. We can have no denomination in the sum which is not in the units or parts. It is quite possible that the same will hold true when the difference is supposed to be only quantitative. Assuming the fact in either case, we should have definite proof that the cosmological series is finite and that it is impossible to conceive it as infinite. With this result Kant's antinomy would be an illusion. But it is not necessary to push a difficulty here in the form that the sum of the finite can never produce the infinite, as the thought can be best expressed by showing that the talk of an infinite series confuses the distinct notions of infinite time and infinite number. Infinite time is homogeneous and continuous, and so without beginning. Infinite number represents the heterogeneous and the discrete, or quantities as units. A series of events, whether finite or infinite, represents two things, the time element and the number element. When it is conceived as finite both the collective series and the individual members represent a beginning in time. But in the so-called infinite series, the collective whole has no beginning, while each member has a beginning. In the former case we can suppose both to be temporally caused; in the latter the whole has no antecedent cause, while all the individual members conceivably have an antecedent cause and admittedly have a coexistent cause, if cause at all, and if not caused by an antecedent. It is thus the time element that is infinite and not caused while the fact of change always calls for it, no matter how we conceive the series.

Having shown that the "first" cause is always transphenomenal, it is incumbent upon me to ask why it is so universal to regard causality as necessarily implying antecedence and consequence. The answer to this question is that this conception is the only form in which

it can ever present sensible evidence of a relation implying the difference of some kind which is necessary in the idea of cause and effect, though it may not be one of time and space. There would be no way of distinguishing between cause and effect concretely if it were not for the fact that, in a cosmological system, the distinction between centers of reference and between their actions and reactions on each other coincided with the idea of cause and effect sufficiently to make phenomenal relations in time an index of a fact which is not necessarily constituted by antecedence and consequence at all. In the interaction between two subjects, say the impact of two balls, we ascribe the causal act to the moving subject whose action is perceptibly antecedent to the motion in the subject acted on. The antecedent subject is the cause and it is distinct from the subject acted on in space, while the motion in one is antecedent in time to that of the other. Hence the *evidence* of what the cause is must be found in antecedence of the action of the impelling subject with the assumption of inertia in the affected subject. But, in fact, the causal action does not involve antecedence at all. The efficiency occurs coexistently with the effect in the subject acted on. But if it were not for the assumption of inertia and the time relation of phenomena uniformly associated the cause could always be placed in the subject affected as well as in the subject supposed to influence the result. However, the cause in any case is a subject acting and the events indicating it are, in a cosmological system, antecedent and consequent. Moreover, in the communication of knowledge regarding causes it is necessary to have experiential data for making intelligible the causal relation implying a distinction not clearly evident in the unity of time and space, and the only condition under which "empirical" evidence of such a relation can appear is in the fact of phenomenal antecedence and consequence. This will demand an independence of the subjects even though the moment in which the actual causal agency produces its effect represents a coincidence as that between subject and function. This is only to say that the *ratio cognoscendi*, not the *ratio essendi*, of causality is phenomenal antecedence and consequence associated with the assumption of inertia. On any other view of the case it will not apply. Hence we must always expect the representative formula for causality to take the "empirical" form and to expose us to the cosmological illusion, unless we can free ourselves from it by proper reflection.

Assuming then the transphenomenal nature of causality in its first power and its ultimate independence of antecedence and consequence in time, we are prepared to apply the conception to the problem of the

existence of God. I shall have a threefold argument which I shall distinguish by the ætiological, the ontological, and teleological. What I have called the ontological is distinct from the old one by that name and is determined by the significance of that term in the classification of the sciences. But in the application of these methods I must emphasize two very important considerations. The first is that they do not severally or distinctly illustrate or prove the same thing. The ætiological argument will prove nothing more than the fact of an Absolute and this without regard to the question whether it is plural or singular, matter or spirit. No characteristics but its causal function or complimentary relation to "phenomena" can be established by this method. The ontological argument is designed to determine its unity and its nature. The teleological argument is a sort of combined ætiological and ontological process, though applicable only to cosmological relations for determining the conjunction of intelligence and moral purpose in connection with efficient causality. The second consideration is that the argument shall be conducted on the assumption that there can be and ought to be a reconciliation between the Greek supersensible and the Christian superphysical realities. Such an assumption will not readily commend itself to minds bred in the dualism which has possessed civilization for so many centuries and which has embodied itself in the more or less petrified antithesis between religion and science, or God and nature. But whether it commends itself or not, I am convinced that there is no salvation for the religious sentiment in any other resource. The antagonisms that have been cultivated between the poetic and the scientific views of the cosmos have defined themselves so clearly and worked out their embodiment in language with such stubborn and consistently conflicting ideas and associations, that the revolution must be great which will bring them into harmony. Nevertheless I am firmly convinced that, unless philosophy can succeed in uniting divorced tendencies in a way to preserve the best elements of both, there can be nothing but a wasteful controversy between truth and beauty, between a passionless study of nature and a sentimental worship of the unreal. The antagonism was rational enough in the last days of Greece and Rome with the rise of Christianity when materialism was sensuous and immoral and the religious consciousness was endeavoring to revive the "spiritual" ideals of Plato and Judaism. It was also excusable as long as the assumption prevailed that the whole cosmos, sensible and supersensible, was ephemeral, so that the spiritual had to be sought in the immaterial. But after science has discovered a whole infinite universe of supersensible forces and reduced the

sensible cosmos to an insignificant affair, while its conception of matter can hardly be distinguished from spirit, and when ethics has measurably triumphed over the purely sensuous life, there is less reason, and perhaps none at all, for persisting in holding the conception of God, so far apart from our extremely etherealized ideas of matter, especially that the progress of knowledge forces more and more upon our convictions the essential unity of things which was not so apparent to antiquity as to us, though it was as firmly believed. In the atomic doctrine of the ancients there was, of course, little to make the unity of the cosmos intelligible, and it was the demand for this unity and intelligibility that led to the postulation of the divine being to account for facts not naturally traceable in the action of the elements. But in modern times we have very much simplified the atomic theory by reducing the elements to a finite number, some seventy or more, and by the discovery that possibly these are reducible to one form of energy. The ancient doctrine had no means to account for their composition but a mechanical system, while the multiplicity of the elements allowed for any number of combinations suitable to qualitative differences in the compounds. But the modern theory not only assumes qualitative differences in the atoms, except a recent view, and owing to their limited number has to endow them with internal forces that take the purely mechanical conception of composition out of the field of explanation or limits its application. But the tendency to either accept the ether as the ultimate form of energy, or to reduce all atomic elements to one form of reality far more supersensible than the Greeks' conception of non-sensible matter, provides in the field of natural science that unity of regulative agency in the cosmos which monotheism afforded when reducing the polytheistic stage of reflection to order, and consequently, with the law of parsimony operative on human thought, brings every conception of God that is dualistically transcendental into dangerous competition with that unity of forces which offers so attractive a solution to the problem of cosmic complexities having no superficial evidences of personality at its basis. The choice in such a situation must be between the abandonment of the divine and its unification with cosmic energy.

This position is reinforced by the very important consideration that the conception of matter has become so elastic and refined that it is impossible to distinguish it from the ancient conception of spirit. I have already called attention to this fact when discussing spiritualism, and the fact must come up here again for further remark. If we limited the term "matter" entirely to the sensible world, to what we

actually see and touch, with the limited capacities represented by the properties so manifested, we should find it necessary, like the old Greeks in the first stages of their reflection, to call the supersensible reality "ether," as a means of distinguishing the finer elements of nature from the coarser. It was a long time before Greco-Roman thought could bring itself finally to regard even the air as matter. Students of philosophy will recall the elaborate arguments of Lucretius to prove that the air is matter and not some form of ethereal substance. But even the materialists did not venture upon such a conclusion until they had already become familiar with the conception of supersensible matter quite as refined as the abounding "ether" and probably distinguished from it only by its tendency to gravity. The "ether," however, was soon abandoned after all reality was reduced to matter and the void, and all supersensible reality classified also with matter. The monistic tendency was too strong to tolerate a multiplicity of elements qualitatively different from each other. The reduction of the air and all supersensible or ethereal reality to matter, whether of the atomic or non-atomic form, was a unification of multiple forces, even though it was obtained by an extension of the meaning of the term "matter" where it was supposed that we were exorcising spirit while in fact we were but refining matter to include it. This movement of Greek thought was not conscious of itself except in Plato where the philosophic and the poetic instinct joined hands to take an ethereal flight on the wings of fancy and hope. Plato was quite willing to limit the conception of "matter" to the sensible and the ephemeral world, but a consideration which must always operate with the human mind prompted later philosophers to the extension of the term "matter" to cover all the facts of human experience. This was the instinct for unity together with the habit of naming a reality in terms of what it is supposed to *do* rather than in terms of what we imagine is *desirable*. I have already called attention to the fact that ultimately we know the "nature" of a thing by what it does, and that terms denoting substance will always be chosen to name the background of phenomena even though the reality so named has to be distinguished by antithesis with its effect. The moment that the sensible world, which the naïve understanding had taken for a fixed substance, became a mere "phenomenon," the modal appearance of a supersensible reality, it had to be conceived as too closely related to its cause to receive any other name for it than the current name, and hence "matter" from being a sensible fact alone came to be a name for the supersensible condition of a reality that could at any time manifest itself to the senses. We at

first name a thing for what it *is*, and when we discover that we either do not know what it is at all, or know what it is only in what it *does*, we still continue to name it as before, though the new position involves an antithesis in conception of that which it was at first. In becoming thus generalized the term "matter" is exceedingly equivocal, now identical with what we see and feel and now identical with what can be neither seen nor felt, a term equally adapted to matter or spirit. Before this conception obtained a footing there was but one thing to know and name, and this was the sensible world. But the discovery that there was a "phenomenal" world attached, if that conception is permissible, to some unchangeable reality, led to that double-faced unity which gave the same name to both aspects of it while their natures were conceived more or less in an antithesis. Plato saw this clearly when he endeavored to apply the notion of "matter" to the sensible world and that of "idea" to the supersensible world, while the materialists adopted "matter" for the supersensible without any consciousness of the change of conceptions involved in their action.

It was impossible thus to generalize the term without one of two consequences, either the weakening of the evidences for the immaterial or the association of the mechanical idea with the supersensible. In this wider generalization of the term it must represent that generic meaning which covers the qualities of both a sensible and a supersensible reality, with all the abstraction that this involves, as it must apply to facts conceived in an antithesis. If applied only to the supersensible, it may be less confusing but none the less distinguished from the sensible world. In either of them it takes on all the negative coloring that would be expected from a conception that opposed what had passed for gross matter, even though the associations and implications of the latter have not been wholly escaped. It was a misfortune for human thought that this refined conception of "matter" was lost in the conflict which perpetuated the hostility between materialism and spiritualism; for there is the possibility of conciliation as long as the mysterious plasticity and power of "matter" approaches all the ethereal images of the divine, which are hardly more negative in relation to sensible matter than is the supersensible of materialism. It was only the coldly mechanical view of things which still clung to this conception of matter after it had been etherealized that drove the human mind into the immaterial as a resource for a personal view of reality at the basis of things for the sustentation of its hopes and ideals that it thought inconsistent with "nature," and it has persistently held to that policy amid every change in the conception of "matter" and all evi-

dence of a unity of things not easily discoverable in dualism. But there has been no sufficient reason for this persistence after the enemy had conceded half the field of philosophy to the claims that placed the foundation of things beyond the reach of sense.

It is not necessary to rehearse at length the motives that prevented the unification of Greek and Christian conceptions after the discovery of the indestructibility of matter and motion. They are all summarized in the petrifaction of religious ideas into abstract and anthropomorphic formulas which permitted no such elasticity of conception and nature as the propositions of physical science. Ancient thought could most easily have made concessions from the side of religion because there was so much mystery left in "nature," after all the unity which philosophy had given it, that men should still resort to the supersensible as they resorted to the superphysical for ultimate explanation.

DAS WUNDER IST DES GLAUBENS LIEBSTES KIND.

"Miracles are faith's favorite child." The idea of the mechanical seemed to have its limitations, as clearly shown in the slow death of the belief that the stars were divine. But modern science, while it has still more refined the conception of matter than the Greeks did, even to the extent of describing the ether in its terms, has, under the ægis of Copernican astronomy, Newtonian gravitation, and Darwinian evolution, reduced the totality of existence to such a mechanical conception, two of them doing for space what the third does for time, that the concessions which may be made to the ideas of the immaterial still remain free from the evidence of intelligent purpose which is so essential and insistent in the conception of God. In spite of its representation of God as unchangeable and incomprehensible religion has never been properly willing to admit the idea of mechanical action into its conception of the divine and consequently it has always been frightened at the uniformity of nature as if its life depended on mystery instead of faith and confidence in the cosmic order. All that it needs to learn is that intelligence is quite as compatible with the background of the "phenomenal" world as it is with materially organized beings, and having seen this, to adjust its ethical life to the present situation and leave the outcome to the future. It is clear that the amazing discoveries of recent science and metaphysical speculations in the field of physical science in regard to the properties of "matter," the consciousness that the theories of it must be revised and modified, and the hypothesis of ether with properties as far beyond those of ordinary "matter" as any theological "spirit" could be, are considerations

that leave only one thing for poetry and religion to do, and this is to emancipate themselves from the associations that haunt mechanical formulas and seriously ask whether all this supersensuous background of the universe, with its display of forces, almost as different from the simplest conception of the mechanical as an orderly purpose, might not be qualified by functions that merely conceal intelligence of a very comprehensive type behind the mask of mechanism. The ether without any of the positive properties that define "matter" as we know it, except extension, might be the receptacle of processes that unite teleological with ætiological tendencies. All that is required is to show that there is nothing to prevent the possibility that the ether is conscious. The omnipresence of gravitation and electro-magnetic forces with any number of unknown agencies in the cosmos make this quite as possible as any that we know more clearly. We might remember too in our laudation of the Kantian philosophy that his agnosticism was as much directed toward our ignorance of what might be as well as what might not be, and hence that Kant insisted as much on the possibility of an intelligent basis for the universe as he did for the defect of evidence. Whatever limitations we ascribe to grosser matter in this respect, and materialism cannot exclude the capacity of intelligence from some of its forms, we should have less reason for excluding it from the ether than from "dead" matter, if its properties, or capacities, like spirit, are to be described as immaterial. The question of its relation to space is irrelevant. The repugnance to making the spiritual extended is a consequence of the illusions of idealism which gets away from dualism only by making consciousness a function of "matter" and then disavowing materialism while it adopted a doctrine which could not be distinguished from it. Idealism has been the heir to the antagonism between materialism and spiritualism, and has developed it to that degree of logical completeness which prevents all sanity of thought independently of a return to the unity of matter and spirit, which perhaps it often intends but expects to accomplish only by making spirit spaceless, or by making both matter and spirit spaceless. Nothing but the retention of the dualistic conceptions of Cartesianism after that system has been abandoned induces philosophers to insist that spirit must be unextended. This superstition once eradicated we may hope to find some unity in things compatible with what we know of matter.

Wer sie nicht kennte	Who does not know
Die Elemente,	The elements,
Ihre Kraft	Their power

Und Eigenschaft,	And properties,
Wäre kein Meister	Is no master
Ueber die Geister.	Over spirits.

Assuming the possibility and the propriety of demanding a return to conceptions which offer a hope of uniting hereditary enemies, of divesting the prejudices against matter of their sting by insisting that it has long since lost all connotation that justifies any fear of it, and of bringing the immaterial into close enough juxtaposition with the material to make its existence useful and effective, if provable, we may take up the several arguments that affect the problem of a spiritual reality that has been embodied in the name of God, whether we regard it as a substance at the basis of "matter" or as a function of such as we do recognize at the basis of cosmic action. I repeat that I refuse to start with any necessity for supposing it either material or immaterial as a condition of making the argument effective. It is the usual assumption, whether the argument be for or against the existence of God, that, if he exists at all, he must be immaterial. I shall neither assume nor deny this conception to start with. The first question after determining that of causality or a ground for "phenomena," is whether there is evidence of intelligence and then the further question may or may not arise as to the nature of the substratum that displays it, this having been immaterial only in response to the assumption about the origin of matter both sensible and supersensible. I am aware of the presumption against identifying conceptions so mutually exclusive in both popular and philosophic parlance, and it is not my purpose to insist that we can either call matter God, or God matter, with entire impunity. These opposing conceptions with all their ramifications and associations in connection with the antagonisms of science and religion, fact and poetry, nature and art, philosophy and common sense, realism and idealism, coincident with the distinction between intellectual and emotional temperaments, mark off natural and artificial antipathies that are of too long standing and of too coherent a character to yield to the first touch of revolutionary change which may take as many centuries to dissolve as it took to form the antithesis. But the philosopher does not depend on an immediate pacification of the plebs in the enunciation of his doctrine, even though he condemns the fatuity and blindness of a policy which treats "nature" as the work of God and will nevertheless not concede that it is an expression of his character. Time is on the side of the philosopher if only he declares the truth. He can at least call attention to the possibility of conciliation and state the terms on which it can be effected,

and then leave the result to the slow process of evolution. The idealist must concede the reconciliation of the supersensible of science and the immaterial of religion, as his fundamental distinction is between the sensible and the supersensible, always being chary of any supernatural that is more than the background of the sensible order, or reflecting in that its truth, its beauty and its goodness. The argument, therefore, which will rescue what is imperishable in the religious consciousness must proceed upon the assumption that whatever we choose to call the divine must represent some unification with what passes as "nature," though the synthetic character of the argument may finally take us beyond the purely mechanical view of that order.

The Ætiological Argument. — This argument is merely that of finding a cause for facts which do not explain themselves and which imperatively demand explanation. I have already indicated what place it has in determining the noumenological problem which is the first step in the solution of the present question. It is not necessary to repeat here the more fundamental and elementary uses of the principle, as I can suppose this to have been accepted at this stage of the discussion. Nor am I concerned at present with the question whether such a cause or ground is one or many. I am dealing only with the condition which prompts to the supposition of any cause at all. This is preliminary to the search for its nature, single or plural, material or spiritual. If the phenomena are so connected or related as to predetermine the unity of the cause the ætiological method will apply to them. But the first thing to recognize is the fact that phenomena demand a cause and that the primary conception of a cause is that of a subject or substance, not an antecedent "phenomenon." We may call this the noumenological point of view in contrast with the cosmological which endeavors to look at the problem from the standpoint of a series of phenomena mechanically initiated. This position, as I have already shown, I mean to treat as secondary, as it is not adapted to the explanation of change. But it is the noumenological conception of cause as distinct from the cosmological that has importance here. It represents the necessity of some reality other than "phenomena" at the basis of things. Its application may not take us beyond the atomic theory which is a form of pluralism, or beyond a uno-monistic theory of reality of a material sort, but it assumes or proves that events must have a cause or center of reference other than themselves, subjects of which the events are functions, modes or attributes. The only remaining question is whether the individual subjects thus supposed in the pluralistic view are independent of each other or are themselves defi-

nitely related ætiologically to a unitary reality transcending them. The ontological argument must answer this question. But the ætiological problem is the first to be solved.

The noumenological result is an implicate or correlate of the fact of change; the cosmological a correlate of the doctrine of inertia in combination with the fact of change and a pluralistic system of interacting realities. Man insists on accounting for change. He may do this in two ways. He may suppose it the effect of the subject in which the "phenomenon" occurs, or he may suppose it the effect of an object on the subject in which the event takes place. In any case the subject of the event is taken for granted. This is primary and the relation of events in antecedence and consequence is secondary and does not represent the actual causal agent. The existence of God or of any background to "nature," either as the evolutionary process of a single substantive reality or as a pluralistic system of atoms having a further than a cosmological unity, is involved in this primary fact. Now this is actually granted in the very conception of matter or ether. They are both substrata for the explanation or reference of certain phenomena as modes of existence. Either of them will stand for an Absolute as long as no evidence is discoverable for their relation or dependence upon a more ultimate reality, and this is all that any system of explanation requires. But of this in the ontological argument, since matter is a generalized concept derived from a cosmological system of at least relatively independent and permanent centers of reference, and the ether is as yet an indeterminate reality required only by the limitations of matter as known, or as the ultimate source of matter. We are now dealing with the conditions of change or of causes of events prior to the question of their ontological unity. This primary condition is a reality of which events are actions. Sometimes it is characterized as the permanent substratum which makes it possible for us to conceive change. But I do not assert or assume the *necessity* of any eternal basis for phenomena, as this term necessity is a misleading one, and as the only proper import of the term is the inevitableness of an event that is caused, not the inevitableness of its cause. We may be necessitated to believe the existence of a cause while the cause may not be necessitated. Hence I am not at present concerned with any nature of a substance, but only with its causal relation to its modes, and this seems to be demanded instinctively by the fact or assumption that change does not account for itself. Whatever the initium assigned to any fact or phenomenon, whether a cosmological series or not, it is always concerned as taking place in a subject and as having its char-

acter determined by that subject. An Absolute of some kind is thus necessarily given in the very conception of the facts of experience, or if not given *in* them is necessarily implied by them. The Absolute, however, as a substance, is a very meager substitute for the conception of God, as that is defined and understood, though that much has first to be gained as a condition of obtaining more. The existence of one or many absolutes is given with the fact of the relative and the number of them will be determined wholly by the number of relatives not connected in a way to suggest unity. A system of interrelated relatives will suggest a single Absolute, while a system of independent relatives must suggest plural absolutes. In either case, however, we have a substantive background for "phenomena" while pluralism can hardly be conceived as a rational system without a bond of connection to give it the name of a system at all, and this inevitably leads toward a unity at the basis of any and all systems that are not a chaos, even though that unity be nothing more than teleological.

But the point at which the conception of the Absolute begins to coincide with the idea of God is that where the question of its initiating agency arises. The conception of God, as defined for us by history, is, of course, much more than that of an Absolute, though it includes it. The Absolute might be nothing more than a static reality without the power to be more than a passive subject of its attributes, a dead inactive thing. But the conception of God stands for at least two functions which must be found in the Absolute as a condition of giving it philosophic and religious power. They are the capacity for initiating change and the exhibition of intelligent action. The first of these is an ætiological and the second a teleological problem.

The place which any initiating agency shall have in the world will depend upon the compass and limitations of inertia. It is perfectly possible to imagine a completely dead and changeless universe. The apparently barren and unchanging condition of the earth's satellite is a good illustration of what is quite possible in the whole cosmic system. The doctrine of inertia seems to require the constancy and stability of any condition in which reality may be found at any moment of its existence. But what we find in fact is a perpetual variation from any such fixity, and the question is raised at once in regard to the limits of inertia in explaining the facts, or at least as dispensing with causal agency. Ancient materialism, especially in Epicurus, saw clearly enough that it could not get along with the absoluteness of inertia, and implanted spontaneity or free will in the very atoms as an initiating agency in cosmic collocations. A self-active principle seemed abso-

lutely indispensable to it to make any progress at all in explaining, and there seemed no offence for reason to put this in matter as an endowment quite compatible with its other functions and properties. It was only when the human mind insisted on defining matter by inertia as one or as the most essential of its properties, if property it is, and on distinguishing it radically from spirit which was endowed with self-activity, that spontaneity was excluded from the atom, and absolute inertia took its place in matter. Under this conception no change from any given conditions, whether of motion or rest, was possible from within. If change occurred as a fact it was traced to foreign initiative, and any motion once instigated was supposed by the doctrine of inertia to remain as it was started, and its variation in direction or the cessation of it was referable to a similar cause. In this way the cosmological argument for an absolute beginning of a series arose, and neglected the consideration of the changes that were contained within the series.

Now it is apparent that the universality or absoluteness of inertia breaks down with the fact of change wherever the subject in which it occurs counts for a cause modifying the direction or mode of what it receives, and the only question after that is whether the self-activity supposed to explain change is to be found in matter or outside it, whether the Absolute is material or immaterial. Nor does it make any difference in which we find it, if the result actually explains our phenomena and opens the way to all those ideals which have sought in various ways to obtain a support that was supposedly not discoverable in dead matter. Taking inertia to mean the inability of a subject to change its condition whether of motion or rest, and nothing more than this, it is apparently if not unquestionably true that all changes involving increase or decrease of motion must be caused from without, and as long as the explanation of all collocations of matter was made a mechanical process of motional change after the simplest type of that "phenomenon," the cause had to be external, and it was natural to find ultimate initiating causes outside matter while the amount of existing motion in it remained the same, this being once supposed to exist. But when chemical and organic action came to be considered and when internal changes from affinity and similar "forces" were recognized, inertia either had to change its import or to admit that there was no necessity for transcending matter for the explanation of certain changes, and the consequence has been that modern thought has practically abandoned the idea that matter is "dead." I do not say that this is the correct tendency. That is another question. But when it has

done so, it should not be so strenuous and irreconcilable when it hears the name of God mentioned, as it has only adopted the attributes expressed by that term for its substratum matter. The refinement through which the conception of matter has passed sustains this view of indifference in regard to what shall be ascribed to it, and the ether comes to our speculative vision with such immaterial properties and with nothing but the laboratory methods and associations of science to prevent us from calling it God. But starting with the fact of change incessant and multiplied in every direction, as the evidence that there is some limitation to the law inertia, we may examine the several indications of the extent of that limitation.

A mechanical system works itself out beautifully on the doctrine of inertia, provided you have either eternal motion to start with or a "*primum mobile*" to start the motion which would remain indestructible, and provided also that your one fact to be made intelligible was only motion with a well articulated system of media for the transmission of energy. But this assumes that there is no change in the direction or mode of motion which is not what we find. But how to get change of any kind, whether of motion or other type of action, is the problem. Continuous or intermittent efficiency of the "*primum mobile*" would solve this question, and where any dissipation or increase of energy is conceded, would seem to be a necessity, if an orderly unity is manifest in the system. Of course Epicurus assumed this "*primum mobile*" in the spontaneity of the elements, but when this was eliminated there was no escape from at least a *deus ex machina* where change was an accepted fact. This change also involved a finitude of the series of phenomenal facts, a position assuredly granted in regard to matter by the vortex atom theory which virtually abandons the ultimate indestructibility of matter by assuming its created nature. The cosmological conception of the material system as having an absolute beginning seems thus to have scientific credentials in its support, notwithstanding the *a priori* inconceivabilities of Kant and Hamilton. But grant that the series has no beginning, the existence of initial changes in it is assumed and must involve the same variations from the strict interpretation of inertia as any absolute beginning of the series. Moreover a strictly mechanical philosophy has to answer the question about change in the system as a whole. As a collective whole no change would ever originate in it on the doctrine of inertia, but it seems, from the doctrine of evolution, that the whole as well as the parts represents the initiation of change and it is hard to conceive it to exist in all the parts without supposing

that the collective whole was involved. Assuming that the whole was involved it is certain that no mechanical principle will account for it, and this independently of any question as to the eternity of motion. It would be the same with the parts where any change is involved and the dissipation of energy admitted. The so-called equivalence of actual and potential energy is not relevant, as this depends on an equivocal import for the term energy. The only way that one can evade the idea of change in the supposed dissipation of energy is to equate the dynamic condition of it with the static or potential. But in fact potential energy is not energy at all. It is a static condition antecedent or subsequent to an active condition and either the static or the dynamic condition involves a change, according to which is the antecedent.

But the two important points against the universality and absoluteness of the doctrine of inertia as the primary characteristic of the Absolute are (1) the qualitative modifications of subjective activity in connection with the action of efficient or mechanical causes, and (2) apparently the behavior of radioactive substances. We have already seen how the qualitative changes involved in chemical action and the qualitative modifications of energy in its transmission through different media or subjects lead to a qualified interpretation of the conservation of force. We found that, whatever the foreign instigation of an effect, the nature of it was determined by the character of the subject in which it occurred. If any other subject than the given one were involved the effect would be correspondingly different. A match applied to a bar of iron only modifies its temperature and volume slightly; applied to a powder magazine it results in much destruction. The subject counts for as much as the object in the effect, and though this subject might not have acted without instigation from an external source the way in which it shall act is determined by its own nature and not the nature of the external stimulus. The chemical action of substances has no equivalent in the merely mechanical agencies which produce the proper relation between combining elements, and this is especially to be remarked in the cessation of that chemical action at a given stage of its course.

The radioactive substances like uranium and radium illustrate in a specially clear manner this activity against a narrow theory of inertia, perhaps more fully than any other material agencies, though it is traceable in many other forms and conditions of matter and is possibly a more general phenomenon of matter than is commonly supposed. They show the radiation of energy from them of great

relative intensity with the minimum of material depreciation. No ordinary mechanical theory, it seems, is adequate as an explanation.

But the most important and effective limitation of the application of inertia, as any intelligible mechanical idea, is found in the spontaneous actions of organic and conscious life. This argument is all the more effective from the fact that I am not using it here to refute materialism, but as representing a fact which the materialist must make consistent with his system or give it up. There is no use to define spontaneous and free actions as more complicated mechanical effects, because this view of them is purely *a priori* and without one iota of "empirical" evidence. All the "evidence" that is produced is the assumption that mechanical action is universal and that alleged free actions "must" be of that type. I am not supposing these actions to be responsible, as there is a radical distinction between free and responsible acts which has not been sufficiently recognized by philosophers. I am speaking of actions subjectively originated whether regarded as responsible or not. They show no such correlation with external stimuli as true mechanical actions show and should show, while the "complication" of which the materialist speaks only illustrates those subjective modifications which he must admit in both the mechanical and chemical fields outside the organic world, and serves as a mere subterfuge for ignorance or for principles that are euphuisms for something anti-mechanical. Moreover there is the direct testimony of consciousness that they are self-originated, and this evidence is better than any testimony to the existence of their mechanical actions and as good as any in favor of the existence of any mechanical actions whatever. The testimony to their self-origination does not mean that they are free acts of a soul other than the organism. With that question I have nothing to do. All that consciousness attests is their subjective origin and it matters not whether we adopt the materialistic theory of mental functions or not. All that is involved is the fact that certain actions called free are subjectively initiated and not mechanically produced in the manner of ordinary simple acts of material motion. The reason that this testimony of consciousness has to be accepted is that its impeachment in the case of free acts involves its impeachment for all acts whatever. I do not say that consciousness directly and intuitively attests the nature of the acts, but only that they originate in the subject and not by the object in any such simple way as the transmission of motion by impact or momentum. But apart from arguments of this kind the fact is so evident that even pronounced materialists have felt obliged to assume that the primordial atom possesses a

germ of consciousness attached to it as one of its properties! It was only the old view of inertia that prevented and prevents men from supposing elemental matter to be self-active, and hence the denial of evidence for its freedom when that evidence was presented. But as nearly all scientific men have come to believe that matter is not the "dead" inert thing it was once supposed to be, there is perfect readiness to admit into materialism postulates that were once denied. It is true that its advocates do not see the abandonment of their traditional view and the adoption of properties that had been previously admitted to properly characterize the immaterial and the divine. The facts were denied because the immaterial and the divine were denied. But the later materialism simply appropriates the facts and conceptions of theism under its own name and is not ashamed of the theft. Materialism has simply been abandoned without calling the result spiritualism or theism, the advocate of it forgetting that the admission of facts and properties into the conception of matter which had all along either been denied or assumed to contradict materialism only generalized his conception of matter to more or less identify it with the spiritual. The fact of organic spontaneity is all the more effective from the consideration that the absoluteness of inertia, even below the organic world, is denied and hence is much less probable in a field where the distinction from the ordinary mechanical phenomena is infinitely more marked; and the refinement of the conception of matter is carried so far that there are no clear criteria of its distinction from the traditional immaterial reality, or of its incapacity for all the functions supposed to be the peculiar characteristic of the divine.

The ætiological argument thus results in the exposure of the defects in the older materialism and the confirmation of the position which was a necessary consequence of these defects, namely, the recognition of limitation to the doctrine of inertia and of a self-activity in things, a position that either demands an immaterial Absolute or converts the term "matter" into a practical equivalent of the immaterial as often enough conceived. In either case the conclusion is the same and the old antitheses and controversies have no excuse for their persistence, except the stupid incapability of both sides to see that they agree. But there is gained for the system of belief that, in some form or another, self-activity has to be conceded as a function of reality and one of the most important characteristics of the Absolute beyond its mere substantive nature thus becomes a rational object of belief.

2. *The Ontological Argument.* — This is the argument from material causes, as the ætiological was from efficient causes. This on-

tological argument also divides into two forms which I may distinguish as before, the noumenological and the cosmological, and turning more or less upon the same class of facts though viewed somewhat differently. By the noumenological point of view I mean the process of reducing reality to unity of kind, reducing the Absolute from multiplicity to simplicity. This is done by comparison and classification. It matters not whether the comparison and classification is of substances or attributes. If we start with the latter, as we may very well do, we should only apply the ætiological argument to the resultant and obtain a smaller number of types of substances than with unclassified attributes. But assuming that similar attributes imply similarity of substances and different attributes different substances, we may start to simplify the multiplicity of nature by finding that its realities are reducible to a small number of kinds, or even ultimately to one all-pervading energy. The earliest systems of philosophy admitted that the elements were qualitatively different and usually limited in their number. Ancient materialism of the Democritic and Epicurean type, as we have seen, postulated an indefinite number of Absolutes, though they were all of the same kind. But modern atomism has again accepted a qualitative difference in the elements and limited them to some seventy or more. More recent speculations, however, more especially in the law and classification of the elements by Mendelejeff, have inclined to reduce these seventy or more elements to a single form of ultimate reality which has differentiated itself by evolution into the various kinds, whatever that way of describing the change may mean. This result permits of the supposition that all activity may originate in the ether and flows through matter as its channel after matter is once formed, and the doctrine of inertia is saved by putting the origin of change outside of matter. This general movement is exactly parallel with that from polytheism to monotheism in ancient thought, or perhaps better, duplicates it. It is simply the reduction of the Absolute to one instead of many. But I shall not indulge in speculations of this kind further than to remark the important point that the tendency of science is away from an ultimate pluralism and toward an ultimate monism which is decidedly away from the old mechanical materialism and toward the theistic conception of things. This scientific and philosophic monism exhibits reality as far removed from "matter" as spirit can be conceived to be. The ontology of the problem reduces its ætiology to a single active principle at the basis of things, with a tendency to describe it in terms that are the negative of the sensible physical world. All that is required to complete the

"spiritualizing" process is to prove that this final reality, whatever name we give it, is intelligent or acts along rational lines.

The cosmological side of the ontological argument is the application of the conservation of energy to antecedent and consequent, or to the series of phenomena which are supposed to constitute the world. In discussing the materialistic theory of the soul I called attention to the fact that this doctrine of conservation had tended, in the minds of many of its advocates, to identify antecedent and consequent qualitatively; that is, to identify in kind and in spite of all superficial differences the phenomena of the world which were supposed to be an expression of its nature. The previous materialism had kept up the antithesis between the subjective and objective, between the internal and the external, between antecedent and consequent, owing to the fact of an exclusive reliance upon the conception of efficient causes in the explanation of phenomena, and consequently its phenomena as effects were no *material* attestation of the character of the cause other than as an agent capable of producing an effect. But the materialism that found expression in the conservation of energy had either to reduce the effect to the more circumscribed nature of its efficient cause, treating the apparent differences as illusions, or to admit into the cause what is observed in the effect. Of course, it tried the policy of maintaining the identity of antecedent and consequent while it preserved the implication drawn from the assumption of their difference, a task that is impossible. Nothing is clearer than the fact that, if cause and effect are identical in kind, we cannot eliminate the recognized nature of the effect from that of the cause. According to the conservation of energy qualitatively interpreted, the difference between antecedent and consequent need not be greater than that between two personal consciousnesses. The objective consciousness of another person does not appear to be a consciousness to me except through teleological evidence. All that I perceive is a system of what are called physical phenomena or movements from which I infer the existence of consciousness antecedent to them, and by them producing an effect upon my own sensorium. When I assume that consciousness is behind those movements I identify it in kind with my own, but its nature is no more directly apparent to me than the nature of a cause is to its effect. It is quite possible to explain the distinction and apparent differences between all causes and effects in this way, if we insist on applying the conservation of energy to them qualitatively, making the effect as much the standard for determining the character of the cause as any direct study of the cause itself. So long, therefore, as the conservation of energy is

interpreted to mean an identity between the products of cosmic action and the source of them, so long must it face the necessity of seeing in the consequent the nature of the antecedent. The illusion can in fact be turned completely around and charged to the materialist for supposing that the cosmos is mechanical. The effect is what is more directly known as a datum of experience and the cause often indirectly and inferentially, in so far as its "empirical" nature is concerned. If illusion is chargeable to our interpretation of the case it can as well be thrown upon our assumption of the nature of the cause as well as upon that of the effect. In this problem illusion is a two-edged sword. It cuts both ways. The duty of the human intellect, when it is dealing with material causes, is to recognize the nature of the effect as fully as the cause. The "highest" product of nature demands as much consideration as the "lowest." In the animal and human worlds we have consciousness as the final result of the process of evolution, and the conservation of energy, which is assumed to be the basal principle of evolution, if interpreted to imply qualitative identity of the various steps in this process, must find consciousness in some form in the stages preceding the "highest" and supposed to exclude this "phenomenon." There is no escape from this but to return to some form of antithesis in kind between cause and effect. But we cannot support evolution upon the conservation of energy or persistence of force qualitatively interpreted and at the same time assume the old antithesis which was based upon the notion of efficient as distinct from material causes. Efficient causes were supposed to produce effects unlike themselves, so that consciousness appeared as an epiphenomenon irreducible to the materially functional, while it was assumed that the material was clearly understood. But evolution has insisted that there is a stream of identity running throughout the cosmic process, and whatever function it assigns to efficient causation must modify the old interpretation of the antithesis between cause and effect or surrender the usual conception of its evolutionary process. The assumption of the identity of cause and effect must involve a definite proof of the personality of the Absolute, even though it may not be the type we most wish, and also as complete a disproof of the ultimately dead and inert character of cosmic reality. If the theist wants to win his victory without effort he has only to prove and press the conservation of energy as it is so often conceived and he will have every form of impersonal materialism at his mercy.

But it is the doubt about any such interpretation of the conservation of energy that prevents this argument from being perfectly con-

clusive. In the first flush of enthusiasm over a position that seemed to sustain the persistence of motion and to deny its creation the advocates of the conservation of energy ran off into assertions that left no room for the differences between cause and effect, but which were apparent enough to make a resort to illusion necessary, if the difference were pressed against conservation, as a condition of sustaining a unity and identity in things not superficially evident. But the more the "phenomena" were dispassionately studied the more evident it became that the conservation of energy was a doctrine subject to decided limitations. It was obliged to confine its identity of cause and effect to quantitative and not to extend it to qualitative aspects of phenomena. Correlation became the better expression for the facts that were once supposed to be clearly reducible to the ordinary mechanical conception, as described in the common transmission of motion. That abandonment of the qualitative identity between antecedent and consequent is a return to the principle of efficient causation as distinct from material, and may assume that the effect is different in kind from the cause and a creation of it. This enables us to remain by the materialistic assumption that consciousness may be a function of an organism that is composed of units whose activities may not contain any consciousness or capacity for it independently of their combination in an organism. But the moment that we assume an identity of kind between the motion that is supposed to instigate consciousness in an organism we have to admit that the consequent is quite as much an expression of the nature of things as motion, and the only position that will escape this conclusion is the abandonment of the qualitative interpretation of the conservation of energy.

It is true that there are many facts which point to some measure of identity between antecedent and consequent in certain cases. It would indeed be strange if it were not so, when the ontological consideration of material causes in the substrata of phenomena leads to a perfect identity of kind in the various forms of matter and to the singleness of the Absolute, in spite of the differences that we observe in things. Subjects revealing likeness of kind should show likeness of function, so that their interactions, whether representing causal relations of a purely transmissive and mechanical sort or not, would manifest some measure of identity between the members of the series, and only differences enough to give and sustain individuality. The fact that the elements with all their differences can be classified in the law of Mendelejeff and appear to be ultimately reducible to one form of reality is sufficiently near the Leibnitzian doctrine to suggest that, in spite of the

differences, their actions will resemble each other enough to suppose some identity between antecedent and consequent, though it may not be determined by any principle of transmission but by efficient causation without this transmission and without assuming that the efficient cause has to be different from the effect in all its aspects. The two subjects, putting ourselves at Leibnitz' point of view, may be sufficiently alike with some differences to account for the identity of cause and effect without assuming transmission. The fact that any language of indestructibility and convertibility at all could be applied to the relation between cause and effect rather favors some modicum of identity between them in the field either of "phenomena" or of "reality," and perhaps both, and one can even ask how that identity could be spoken of as quantitative without involving more or less of the qualitative with it.

There is a good analogy which can be obtained from psychology. It has become necessary in recent years to distinguish between what are called subliminal and supraliminal mental operations as apparently distinct from the merely mechanical actions of the brain and consciousness as introspectively known. The time was, however, and this was in the schools of Descartes, when the contrast was between consciousness and cerebral activity, and this was drawn so sharply as to preclude all elements of identity. But the study of psychology has shown a field of functional activity that cannot easily be identified or confused with either of these extremes. There is a large class of so-called subliminal actions which show intelligence enough to require distinction from the purely mechanical actions of the brain and are yet so foreign to the direct apprehension of the supraliminal or normal consciousness as to be quite as inaccessible to it immediately as any molecular action of the brain. It will at times just merge into this supraliminal and hardly preserve its integrity sufficiently to deserve a distinction. At other times its cleavage from the normal consciousness is so clear and apparently so absolute that it would seem to be a totally different person. At all times, as exhibited in reproduction and association, it may be supposed to be the substratum of activity that determines the normal consciousness and emerges into it only by virtue of increased intensity or the sudden arousing of the mind from a sleep, as it were, to the cognition of conditions that can be met and coped with only by functions less lethargic than the subliminal. This subliminal while it serves as the background of much or all that appears in the supraliminal shows such marked evidences of being intelligent and conscious in some sense of the term that it is impossible to distinguish it from the nor-

mal by any characteristic except the normal mnenonic link or normal introspection. All the coördinations, adjustments, and displays of mind, a hyperæsthesia at times, memory, judgment of its own, and reasoning, are there to distinguish it from the fixed and mechanical action of the brain in the same way that the normal consciousness is distinguished. The least that can be said of it is that it stands between cerebral action and consciousness, unless we cut the knot, as the materialist does, by identifying consciousness and cerebral action. But in fact subliminal mental action can be distinguished from the normal consciousness only by the fact that it cannot be introspected by the normal stream while every other characteristic absolutely identifies it with the best that we know of intelligence. If then we should concede the elastic nature of cerebral and molecular action and break down the line of demarcation between it and subliminal action so as to identify them, as some do, we should have a certain continuity of kind in all the phenomena excluded from consciousness as most familiarly known, a result that would create a presumption in favor of applying this continuity to the relation between the subliminal and supraliminal, and consequently the substantial identity of mental and cerebral action. Scientific men who use the conception of the subliminal so freely are not always, if ever, aware of the significance attaching to the conception of consciousness for describing what is as fully excluded from the normal state as the external world which has so long been absolutely distinguished from the mind. Subliminal consciousness, excluding what we really know of consciousness introspectively, is so closely related to the wholly unconscious of brain action as to be apparently identifiable with it, and yet the description of it in terms of the mental implies its identity with that also. It is certain, however, that the distinction so sharply drawn by the Cartesians can no longer be sustained so clearly, and the fact that it cannot be so dogmatically assumed or asserted as then leaves the question of their relation open to consideration on the lines of their substantial identity through the connecting link of subliminal action. Such a procedure carries with it the necessity of estimating the nature of things as much by the "highest" as by the "lowest," as already remarked. It is certain, then, that, on any principle of the conservation of energy involving the qualitative identity of the mechanical with the subliminal, and of the subliminal with the supraliminal, this view leads inevitably to the identification of the extremes and we shall be obliged to interpret the antecedent by the nature of the consequent in order to save our doctrine. In fact on any principle of cause and effect, even that of efficient as distinct from material

cause, whether we interpret the conservation of energy as merely quantitative or not, the effect or consequent is entitled to as much consideration in the interpretation of the nature of the cosmic Absolute as the antecedent, especially when that antecedent has to be regarded as quite as much an effect or phenomenon as anything supposed to be *its* consequent. With consciousness at the top of things it will be hard to exclude it from the bottom on any ontological interpretation of the relation between cause and effect, when any other conception of causality involves the necessity of valuing consciousness as highly as any other phenomenon in the determination of the nature of things. The continuity that reigns throughout the physical universe and the process of evolution, in spite of the variations of kind manifest on the surface, are indications that we may yet find complete evidence of intelligence in the Absolute, though we may not be able to give it the anthropomorphic form which appears most intelligible to us. All that prevents us from doing this is the actual weakness of the theory of conservation which, in encountering qualitative differences sufficient to preserve individuality, provides a difficulty in the ontological argument.

The Teleological Argument. — Kant, as we know, estimated this more highly than any other argument. With his conception of the problem as discussed in the cosmological and "ontological" methods this judgment was correct enough. But I cannot help thinking that it is less important and cogent than the ætiological and ontological arguments as I have defined them. Of course the ontological argument, as based upon the conservation of energy qualitatively interpreted, is purely *ad hominem*, and the teleological method comes in to utilize the conditions left by the reinstatement of efficient causation after the limitation of the material. It is clear that there was a close connection between Kant's conception of the problem as found in the cosmological and the teleological methods. Both started upon the mechanical conception of the cosmos as not to be questioned within certain limits, a view driven into his mind by his interest in physical science and his deviation from the monadism of Leibnitz which this interest enforced. The manner in which Kant returns again and again to the cosmological conception of the problem shows that he sympathized with that way of stating it and of representing the facts, and the only difficulty that he felt with the theistic interpretation of it grew out of his inability to prove that the cosmic order had any such necessary beginning in time as the theistic position seemed to require. In the earliest stage of his thinking Kant accepted as a foregone conclusion the purely mechanical view of the world and the interaction of its parts

and elements, and did not realize fully the problem that he had to deal with until he came to write the *Critique of Judgment*. Here he came upon the conception of organic teleology which gave the teleological argument all the force that it had. But until he came to this view the mechanical conception which seemed to demand a cosmological beginning in time as a condition for all initiation of change apparently left the theistic doctrine to the mercy of agnosticism. The force of the teleological argument in organic nature came, not from its inconsistency with a cosmological origin of motion, but from the assumption that the series of events in the cosmos was not one simple succession of "phenomena," but many lines of series coöperating and converging toward a common end or result, when each series taken alone would offer no natural tendency toward this end. A simple succession of events having a mechanical invariability and not being selective toward the consequences toward which it moves will betray little or no evidence of purpose or intelligence, no matter how much of that characteristic may actually be present. If we see the initiation of a simple mechanical series, as the throwing of a ball, we have evidence of its purpose, not in its result or in the motion toward it, but only in the knowledge of intelligence antecedent to it. The intelligence may be there in the one case as the other, but without the direct knowledge of its purposive initiation that intelligence is not easily, if at all, discoverable. The same would be true of a number of parallel series of different phenomena not coöperating for a common result, and if at any point they should actually come into conflict the effect might even be a positive difficulty to the supposition of intelligence and an evidence of mere chance. But it is hardly so with convergent series of events not naturally connected by mechanical considerations and *a priori* anticipation of their relation to each other. The convergent influence of many different conditions to one harmonious whole seems so beyond chance, which was supposed to rule the mechanical order, that it suggests intelligence as well as causality behind the process, though all the individual series of events be conceived as mechanical and without evidence of purpose.

Now it was the mechanical conception of nature which showed to Kant the weakness of the cosmological argument, and it was the assumptions of idealism perpetuating the antithesis between thought and reality that exposed the weakness of the "ontological" argument, while it was the evident orderliness of nature and the consistency of intelligence with a mechanical system, its necessity, perhaps, if that system were complex enough, that saved the teleological method when

the others were surrendered. When we add to this the demonstrable fact of purpose in animal and human actions, with at least a decided simulation of it in the tropisms of the organic vegetable kingdom, we discover a situation from which it is hard to exclude the idea of purpose when looking at a mechanical order on which the whole is built. Accepting the positive knowledge that conscious purpose operates in ourselves, we have only to press the materialist on his own theory with the organic nature and connection of man with the cosmic order, with the law of evolution and the continuity in nature, and with the conservation of energy, as frequently interpreted, in order to insist that purpose will be found at the very basis of the system. We have in our own mechanical productions analogies that are of some value both in regard to the strength of the argument and the evidential weakness with which it may at times be associated. We can easily distinguish a machine from a product of nature in most cases and we distinguish it by the evidence of design in the coördination and articulation of the parts, and it is most interesting to remark that we can often be assured of design with perfect confidence although we are powerless to specify the particular purpose of the machine. It is important to note this fact, because the objection against design in nature might be advanced that we could not indicate just what its purpose is. While it may be granted that we cannot specify exactly what the meaning of nature is, it may nevertheless give evidences, like a machine, of *some* design. Before we can estimate its character we must know the particular purpose it displays, but our ignorance of this desirable trait does not prevent the formation of a perfectly legitimate conviction that there is some purpose in it, if the evidence is present to suggest and establish it. The general argument is the complication and coördination of various apparently independent organs to an end not attainable by any one of them alone. The appearance of this condition of things in nature offers some excuse for the application of teleology to nature, as in the interpretation of the actions of organic life, whatever the difficulties involved in the problem. Nor does the fact of natural selection and the survival of the fittest alter the case, as they are often supposed to do. They only increase our respect for an order that might be worse than it is. If we knew the exact outcome of the cosmic tendency in regard to the weak we might apologize more clearly for the process of natural selection and the survival of the fittest, but wanting this information we can only note the fact that they indicate nothing more than the fact or possibility of defects in the causal regulation of the cosmic order, but they do not exclude purpose by proving that it

is finite, if there at all. The trouble with most thinkers is that they expect the process to be infinite and perfect or nothing, one party having the courage to affirm that it is a fact and the other denying it altogether because of its finitude. It is only our sympathy with the weak, a spirit created by Christian civilization, that induces us to quarrel with the survival of the fittest, a policy that would be quite justified if the immortality of the soul could be established, or if not justified, very much mitigated.

There are various difficulties with the teleological argument which have to be removed in order to discover what cogency it actually has, as well as its weakness. The first is found in the antithesis between nature and art, as it may be called, the latter furnishing us with all the positive evidence we have of objective design independent of nature. The reason that our mechanical inventions and devices supply us with the absolutely conclusive evidence for design in their coördination of multiple independent agents to an end is found in our consciousness of the ends which we have in view when making them. We are in direct knowledge of their purpose by actually constructing them for a given end, and any construction of a mechanical complex resembling what we know is teleological will suggest this even when the specific purpose is not known. Moreover all human conquests over nature have represented what often or always passes for something superior to the natural order of things. The very survival of the species depends upon achievements that mean more or less man's superiority to "nature" and certainly his appreciation of those achievements representing what "nature" will not spontaneously accomplish. These artificial arrangements certainly show more decided *evidence* of purpose than the order of bare nature. The construction of a park leaves no doubt about the existence of a purpose, even though we might not be able to name it, while the growth of a forest or the formation of a mountain would possibly conceal its design altogether, if it had any at all. All the artificial triumphs of civilization, invention, manufacture, art, government show so much that is wrung from nature, not spontaneously given us, that they inevitably determine the standard by which we measure its character. All the finest appreciations and achievements come from a struggle against nature, not from its benevolence. A life amid the perpetual results of this struggle and their contrast with the real, and the shadows which idealism discovers on reality, provide the criteria by which we estimate the purposive or purposeless nature of things. Design and benevolence are patent in our own achievements and the contrast with the

order from which they are wrung inevitably reflects a sceptical suspicion upon the claims of providence in what seems to be nothing but a mechanical system. Of course, it is an adequate defence against all this to say that the purpose of nature may be very different from that which is so apparent in the creation of art. But this logical defence does not remove the moral embarrassment of the situation. Civilization is so dependent upon the virtues which determine all the achievements of art against nature that we have hardly any other criterion of morality in the ordinary consciousness but the duty to rise above nature. Our ideals are so complicated with the advances that we have made against the struggle for existence and the effort of nature to keep us down, so to speak, that, whatever purpose is possible in it, is not likely to be attractive enough to secure our worship.

"Let us understand once for all," says Mr. Huxley, in his Romanes Lecture, that the ethical progress of society depends, not on imitating the cosmic process, still less in running away from it, but in combating it. It may thus seem an audacious proposal thus to pit the microcosm against the macrocosm and to set man to subdue nature to his higher ends, but I venture to think that the great intellectual difference between ancient times with which we have been occupied and our day, lies in the solid foundation we have acquired for the hope that such an enterprise may meet with a certain measure of success.

"The history of civilization details the steps by which men have succeeded in building up an artificial world within the cosmos. Fragile reed as he may be, man, as Pascal says, is a thinking reed; there lies within him a fund of energy, operating intelligently and so far akin to that which pervades the universe, that it is competent to influence and modify the cosmic process. In virtue of his intelligence, the dwarf bends the Titan to his will. In every family, in every polity that has been established, the cosmic process in man has been restrained and otherwise modified by law and custom; in surrounding nature, it has been similarly influenced by the art of the shepherd, the agriculturist, the artisan. As civilization has advanced, so has the extent of this interference increased; until the organized and highly developed sciences and arts of the present day have endowed man with a command over the course of non-human nature greater than that once attributed to the magicians."

Consequently, art obtains all our admiration and enthusiasm, and in default of clear evidence of even so high a design, much less a higher design than this in the cosmic order, we are in danger of so extolling our own superiority to it that we may forget the virtues of

obedience and humility. But the formation of ideals from a teleological order that is won against nature inevitably tends to darken the vision for any other form of intelligence or virtue.

The second difficulty comes from the long standing assumption of a unity of plan in nature that converged all forces in the welfare and destiny of man. Man naturally places himself at the head of creation, and his own ideals, as we have just seen, tend to obscure the recognition of anything else, while aristocratic instincts prompt him to treat all else as subservient to his aims, and to adjudge it accordingly. Besides Christianity started out, in the teaching of St. Paul at least, as already remarked, with the conception that the whole creation was organized with reference to the existence and salvation of man.

> One God, one law, one element
> And one far off divine event
> To which the whole creation moves.

But I must contend that this conception, whatever we might say of its tendency to encourage too much self-importance in man, is exposed to the very serious attack the moment that we endeavor to make it consist with the totality of cosmic facts now within the range of scientific knowledge. Man may be the highest development of the known universe, but this fact does not prove the convergence in him of its forces and plans. There may be manifold richer purposes. The fact is that singleness of plan is not necessarily the mark of the highest intelligence. The division of labor in finite beings may often make an apparent singleness and imperfection of purpose the only possible course for a man to adopt, as the complex work of civilization can be accomplished most economically and with the best results by using the individual's time and energy at one subordinate end in himself. But the ideal life hardly admits so one sided a development of the individual, and there is probably not any such singleness of plan in the life of any man, no matter how his activities may be limited by the struggle for existence and the division of labor. It is certain that there are plenty of men who cultivate a variety of independent and disconnected ends. It is no doubt true that economy of energy is better effected by concentration of it, as the whole process of intellectual and moral development has shown. But the fact that men can and do cultivate a variety of independent ends in life, not always subordinating one as a means to another, is evidence that there is no absolute necessity for the cosmos to exhibit a single plan as a condition of being regarded as intelligent. It might be the contrary of this. It has only to be consistent in the variety of ends which it pursues. No doubt an apparent or real single-

ness of plan would make it easier for man to discover or to understand the intelligence pervading it, especially if that plan involved the possibility of realizing his own moral ideals. But the price at which he would gain that intelligibility would be the sacrifice of all that gives richness and wonder to the scene in which his lot is cast. On any theory of the cosmos it is a congeries of plans which cannot be made intelligible to us by pressing them into one mold or by attempting to subordinate some to ends with which they do not naturally articulate, and this is true even though ultimate knowledge of things might discover more unity of plan than is now apparent. Of course, whatever variety of purposes may exist either in nature or man it will have some sort of unity, as this would follow from the unity of the intelligence that held them. But it is not necessary to formulate this unity by an abstraction embracing the whole or by selecting one to which the others are subordinated. The unity does not require to be one of convergence of manifold actions to one end, though that is possible and intelligent, but it may be one of divergence into a variety of consistent though different actions and ends. It may be better for man, and we might say that his duty lies in this, to select some one apparent design that commends itself as worthy to aim at and to reinforce the efforts of nature to realize it, while he occupies a respectful attitude of mind toward what he does not know. Man's morality too, like his art, is so often a conventional product that it prevents his seeing the cosmos in its proper light. It leads him to make demands on nature which, if granted, would only poison the best springs of character. His most spontaneous demand, for instance, is exemption from labor. But those who have studied life know that character is never fine unless tempered by struggle and effort. The ease and liberty which wealth gives are not always assurance of moral worth, but more frequently of vice and libertinism in some form. Wealth if it is an aristocratic possession won from the inadequately requited efforts of "the dull millions that toil foredone at the wheel of labor" may only conceal behind the mask of culture and good manners the most inhuman indifference to the rights of man; if it means nothing more than provision against struggle with nature and is not accompanied by voluntary service to man which its possession offers the opportunity to perform, it is effeminating and demoralizing. This will be true of any ideal which relieves man of a struggle with nature, and any that involves the entire subordination of the world to his benefit alone tends to obscure that scientific vision which can see other values in the cosmos than those which seem so important to our conventional conscience. Nature is

more bountiful in her provision for truth, beauty, and goodness than man would be, and our estimate of its teleology must be made on that assumption.

> The fiery-footed barb
> That pounds the pampas, and the lily bells
> That hang above the brooks, present the world
> With no apology for being there,
> And no attempt to justify themselves
> In uselessness. It is enough for God
> That they are beautiful, and hold his thought
> In fine embodiment.

But the multiplicity of the resources and the apparent purposes of nature, especially when they fall below the ideals which man forms for the regulation of his own conduct, is precisely the fact which depreciates the value of the teleological argument for the existence of any divine agent that is represented in human interests, while it conceals the unity of purpose and moral conceptions which might make for the effectiveness of it. If we could stop with the present order in estimating the teleology of nature, an order which represents no other apparent fixed purpose than the continuity of organic species, there might be no intellectual difficulties, though we might feel a moral revulsion toward it. But an end or purpose which ceases with the evolution of values that have less persistence than the lowest is not one which lends itself with ease to idealization. It is inevitable that man, at least the best of his kind, should put consciousness in the first rank of the ideals to be preserved. Otherwise he would not care to make nature rational in any respect, and with this acquisition as one of the highest products of its evolution, he can but measure the character of nature by its attitude toward this result. If he could have any assurance that the legitimate ideals which are planted in him could have any hope of realization beyond the range of the present, where the conflict between duty and possibility prevents much, he would have at least one fulcrum against the burden of doubt that comes from the struggle between fact and hope. It is the absence of clear evidence in scientific times that the highest achievements of evolution shall have preservation in the only subject or being who can rightly enjoy them or use them in the service of high action and thought that gives the sting to reason when asking for a purpose in the world. I can easily conceive good grounds for concealing it in certain stages of civilization, but these do not affect those who want a reasonable motive for aspiration and power to idealize life. If only man could be sure of the purpose which he thinks ought to animate a providential system

when it teaches him to value the highest form of consciousness as above all other facts, he could well thrust aside curiosity about many other plans of the cosmos and devote his energies to further conquests in the struggle for existence and would have a fulcrum of great power for influencing the tendencies of his nature. But not being certain that nature intends to respect his ideals beyond the present life, he has no motive but the stoical instinct of duty, with its range of *command* extending to unlimited time while its *achievement* is confined to the present, to preserve his intellectual and moral life. Let him feel, however, that nature is on the side of his best moral ideals, not realizable under the physical difficulties of human life, and he will not have a motive for quarreling with it for its merciless order, and he will be in a temper of mind as well as in possession of data to make a teleological argument effective, at least in so far as his own duties and aspirations are concerned. It is simply because he thinks nature does not appear to reveal any intention to preserve its best creations that the doubt about its intelligence and morality arises. I am willing to concede that any attempt to place the ideal *only* outside the system in which we at present move and have our being is to threaten its proper development. There is a sense in which the ideal should be found only in the real, and that those normal natures are the best which fit their motives and achievements into the present, content to let the future reveal its own purposes. But that is neither to recognize the actual possibility of using a high ideal for civilizing man nor to solve an intellectual problem, except as the reflex of an actually moral life creates either faith or insight enough to clear away doubt which too often arises from the indolence and lack of courage to make what we fear nature will not give when we have not earned its princely guerdon.

I shall not say that these difficulties in the teleological argument are insuperable. The force which they will have may be largely a matter of temperament. But for the man who seeks anything like certitude for intelligent causality in the cosmos, the inability to clearly name a fact which would show any tendency to realize the highest ideals a man can form and that he feels are an imperative measure for the meaning of things is a circumstance of some weight, not against the method of the teleological argument, but against its successful application. That is to my mind its only weakness. Logically it is the proper means for proving intelligence in a system which, whatever else it may be, certainly represents a vast mechanical order, though the recognition of more than the old mechanical interpretation of nature diminishes the responsibility of teleology in the argument and shares

it with ontology, as I have defined this method. All that is wanting to make it completely effective is the data in facts which will show nature as careful of the individual and the ideals it creates as it is of the race and of the relative value which it attaches to consciousness in the present. If that be once fixed, whether by faith or reason, by hope or science, all other purposes of the cosmos may await solution without any tortures from doubt, as that so often paralyzes action in fine minds. And it is not because there is any superior importance attaching to a future life for consciousness, but because the fact of it would be evidence that the value placed upon it in our present life, as compared with mere material existence, was actually respected by the policy of the cosmos. Materialism of almost every form would disappear before the fact, not because that term is so dangerous, but because the form which it has taken has associated the impossibility of the survival of consciousness with it, and with this system and its implications out of the way the pervasive care shown by nature in the preservation of individual consciousness would suggest very clearly, if it did not prove, a wider significance for intelligence in the course of things at large than would appear in the assumption of it as a mere function of the organism or of composition.

In the teleology of human art there is always the clear consciousness that nature will not produce the arrangements that so palpably show design. But in the physical world it is the very spontaneity of its creations, the condition which gave the ætiological argument its weight against a mechanical materalism, that deprives us of that inert incapacity of nature to dispose its own works, an incapacity which supplies a standard for its own limitations when a question of design is raised that involves coördinations that do not spontaneously appear in what usually passes for a mechanical system in human art. The consequence is that the regularity of the cosmic order leaves us without any such variation from the natural law of physical phenomena as is so necessary for the manifest proof of purpose. It may be there in all systems, but its presence is not necessarily its proof. The organic order merges so insensibly into the mechanical that the design is not perfectly apparent when there, while the inability to point out one clear and unmistakable fact exhibiting respect for moral ideas extending their reach and obligations into the future for realization makes such a purpose as may appear on the surface a satire on the intelligence and moral character which we wish to attribute to the system. It is easy to apply the teleological argument to the discovery of human intelligence, because the man who applies it has both the conscious-

ness of purpose in his own acts and the standard in those acts by which he measures the existence of intelligence in others. The principle of identity, involving the similarity of human acts and the similarity of men in other respects, assumes the validity of our inference to consciousness and purpose in others. But when external actions diverge in their character from those which are sure marks of such intelligence as we know it, the teleological argument is all at sea. This is the reason that philosophers resort to instinct to account for adjustments that appear to be neither mechanical nor rationally intelligent. Coördinations and adjustments in perfect simulation of intelligence take place without any experience or education in the idea of ends, or ideas of the complex means and results toward which the acts tend, and we have no way to describe them in terms of rational purpose, since the fundamental element of that conception is absent, namely, the idea of the means and end, as we recognize them in our experience, at least in so far as our knowledge and the evidence goes. Hence with all our confidence in it, instinct is but a name for our ignorance. Teleology seems to be limited to adjustments that more or less simulate the acts in which we ourselves are directly conscious of purpose, and these represent that variation from a mechanical order which we expect and observe in human acts. All other fields of observation fade insensibly into ignorance.

There is a difficutly with the theistic argument which is not connected particularly with any of the methods involved in the previous discussion. It arises from the relation of the subject to the knowledge which is prior to it and which is represented in the application of ætiological and ontological methods to more general facts than the spiritualistic.

The classification of the sciences showed that they might exist in a relation which implied that the results in one might more or less condition the results in another. Thus we found that the progress made in physiology more or less conditioned the amount of progress made in psychology and sociology. The same relation and influence was extended throughout the system. In the field of the noumenological sciences this relation obtained between the various problems represented by metrology, hylology, "biology," pneumatology, and theology. The achievements of metrology affect the views and results of hylology, and these in turn affect those of "biology," the last being related in the same way to pneumatology, and pneumatology to theology. The meaning of this Comtean relation of prior to later knowledge, as applied to the problem of theology, is that the progress in

theological problems will be influenced by the condition of pneumatology at any given time. This is apparent in the history of philosophy, though the assumption is often made that theology had conditioned pneumatology. But the fact is that it was a problem in pneumatology that determined the course of theological thought and its nature, in as much as the very idea of the spiritual had to be suggested in the pneumatological problem, while it was the object of theological thought, namely, the existence of God, that was used to explain the existence of those facts which give rise to the problem of pneumatology. There is no contradiction in this fact. It is but the difference between the order of existence and the order of knowledge, the *ordo cognitionis* being pneumatology, theology, and the *ordo naturæ* being God, soul. The point which I wish to emphasize is the fact that the solution of the theological problem depends in some respects, at least evidentially, upon the progress made in solving the pneumatological problem. This is to say that the discovery of anything like "spirit" in man, as a condition of explaining the phenomena of consciousness as functions of something else than the brain, would create the strongest of presumptions in favor of "spirit" at the basis of cosmic action, and it would only remain to secure like evidence for the fact.

I have called attention to the fact that the sole reason for supposing separate territories of investigation, or separate sciences, is the fact that we have to deal with different types of "phenomena." These differences suggest differences of causal ground and create a tendency to distinguish ultimate reality accordingly. We found that the anti-materialist wants a soul other than matter to account for mental events and that he bases his belief in its existence on the difference between mental and physical phenomena. But we also found that the law of parsimony will not permit the assumption of any such hetero-realities as long as the facts can be explained rationally by the existing and accepted reality of matter. It may be rational to suppose a soul, but if it is so, it is because matter cannot explain the "phenomena" of consciousness. The facts of consciousness may require a soul to explain them, but if they do, the scientific criterion in the case will exact more stringent evidence than the introspective and analytical examination of consciousness. This conclusion, however it is gotten, and while it may not be the sole condition for suggesting the existence of a spiritual background to nature, deprives scepticism of the strongest of its presumptions and prepares the way for raising the question as to the *nature* of the Absolute or God in relation to intelligence, not his existence in relation to causality which has to be determined, as we have shown,

by ætiological considerations. That existence, as we have seen, might not extend beyond the supersensible form of matter, so that the remaining question would be whether there was any direct or indirect evidence of his consciousness. The existence of a soul other than the organism, whether we choose to regard that soul as refined matter or as spirit, would quite evidently establish a position of advantage to the theistic argument, as it would widen our conception of the nature of things to admit the possibility of much that is not dreamt of in our ordinary philosophy. This widening process is shown in the classification of the sciences where the serial order of dependence shows phenomena bearing evidence as the sciences progress of greater and greater supersensible significance. But the last steps are limited by the amount of progress made in the preceding. The difficulties with theism, therefore, are directly proportioned to the doubts regarding the existence of the soul.

In the past, history has shown us that the existence of God as an immaterial reality obtained, as a belief, its evidential cogency primarily from the assumption that *all* matter, sensible and supersensible, was created, that is, had a beginning in time. If this be once assumed there is no escape from the belief in the existence of such an immaterial substratum, whatever other attributes can or cannot be ascribed to it. The strength or weakness of the belief is that of the assumption that all matter is created. On the other hand, if the assumption of the created and transient nature of supersensible matter is not made, there is no reason for going beyond it for a belief in the existence of God, unless there are facts requiring it and we insist upon dualism. The supersensible might be treated as this reality, as we have indicated, being necessitated by the assumption that sensible matter is the result of causal action. This supersensible matter might be the permanent cause of things and the only question remaining would be as to how consciousness in the individual is related to it, whether (*a*) as a function of a supersensible reality other than the physical organism or (*b*) as a function only of the sensible reality itself dissolvable. The former conclusion would strengthen the belief that the supersensible world had larger possibilities than are usually assumed by science, and the latter would leave materialism an undisputed master of the field. It is quite apparent therefore to what extent theism awaits the conclusion of pneumatology.

I shall have occasion in the last chapter to make some final observations on this problem. At present I can only summarize the discussion that has already taken form. In doing this I must emphasize a

remark previously made. It is that no one of the methods here employed to justify the belief in the existence of God, or some reality active and intelligent in the cosmic process, is sufficient alone to establish the full content of that idea, unless we can assume that the teleological argument, as an embodiment or combination of the other two, can do so. The ætiological method has its limitations and can go no further than guaranteeing some sort of Absolute other than mere phenomena. The ontological argument shows the unity of the Absolute as the background of the multiple realities that are either its modes, its creations, or its modifications, while it supplies the probable source for estimating its attributes in the same way that we determine the nature of phenomena by the conservation of energy. It applies the principle of identity or material causation to the determination of the nature of reality by including the highest in our data, where before we had only the principle of efficient causation as our measure, and this does not require the antecedent to be like the consequent. If a soul other than the organism were once established as a fact beyond question we should not find the ontological argument in the form presented so useful as it is now in an *ad hominem* way with the believer of the conservation of energy qualitatively understood. Consciousness would quite possibly be an attribute of the supersensible reality after such a thing as the soul was admitted and it would be only a matter of evidence to show that the soul existed. But as long as the pneumatological problem is not solved to satisfaction the ontological argument will be a source of greater reliance, whether any more conclusive or not. The teleological argument uses the organic adjustments of nature which seem too complex for mechanical explanation, and with the application of both ætiological and ontological considerations has much force in suggesting the possibility of intelligence transcending or immanent in mechanism. To each of the methods I concede some force for their respective objects, while the fact that all of them together coincide in supporting at least the possibility of the divine, is that much more in favor of their legitimacy in both method and result. The only limitation to their effectiveness is the anthropomorphic conception of God which we have formed and which is hardly, if at all, supported by the data upon which the argument has to be based for its material result. There is little difficulty in supposing some kind of intelligence initiating and pervading cosmic change and evolution, but it is the specific kind of that intelligence and its evident variation from the type of personality which we must naturally revere that gives all the trouble. The actual facts of observation in the order of the

cosmos do not reflect any other apparent purpose in it than the creation and temporary preservation of organic species. The highest ideals of man seem to have no part in its destinies. The permanent feature of its order seems to be the mechanical one and no recognized scientific evidence of interference with it is apparent. It may not be necessary that any variation from such an order should be present, except as evidence of intelligence. But as long as man conceives a mechanical order as possible without intelligent initiation he will be sceptical of theistic claims, unless the results of the mechanical order coincide with the moral ideals which his nature and ethical impulses compel him to recognize. To suppose that the process stops with the production of organic species assumes that its best achievements are transient and that its lowest order is the more permanent. Some point of view in facts must be shown which makes species a means to a remoter end and which widens the conception of things beyond the present apparent mechanical order, if we are to secure the presumptions needed, and these facts must reconcile the mechanical and the organic view of the cosmos. When we can soften the immemorial antithesis between God and nature the problem will be nearer solution, and that can hardly be attained until there is some definite assurance that the consciousness of the individual survives death, a fact that would indicate that the cosmic system had some respect for the ideals that it has implanted and that its own nature was richer than the materialist supposed. It remains for the future to furnish the facts that may justify any such expectation.

CHAPTER XIII.

CONCLUSION.

In the conclusion of this work I wish to undertake a various task. I shall not enter into any technical discussion or argument for or against any special philosophic doctrine. I wish only to make some confessions with general reflections on the problems of this volume that have to be separated from critical investigations. All the questions that have already been the subject of remarks will come up for general review, but not for either offensive or defensive criticism, the object here being the examination of their strength and weakness in the general culture of history. What I wish to do, then, is to indulge, somewhat dogmatically, observations that may point the way partly to mediation and partly to the correction of misunderstandings which have unfortunately petrified into animosities that ought not to characterize the claims of so high a civilization as we possess. In the manifold temperaments and interests of the world, philosophy can hardly afford to be so selective in its favors as to neglect one half the facts which its cosmopolitan genius and functions are called upon to respect. Its duty may invite the hostility of both parties in the world's conflict of intellect and sentiment, but its course is nevertheless clear, whether the ideals which it marks out for itself have any prospect of realization or not. Misunderstanding may be the penalty for its mediating sympathies when it does not choose to identify its fortunes with either party to controversy, but the other alternative, party warfare, is in danger of encouraging in the intellectual movement of history that ghastly spectacle which makes the struggle for existence in the material world so fateful to beauty and goodness, while the truth remains only half discovered. There are moments in its progress, however, when pacification may not be its duty, but a mark of weakness. These are exigencies when it must assume the leadership of human thought and direct instead of modify passionate convictions. Unfortunately it seldom has the freedom to carry any message to the race except those meager truths which the passions of controversy will permit as either harmless or unintelligible to both parties. Its inspiration is too often checked by the necessity of being dispassionate in the estimation of truth, while it has to evade the precipices of sectarian dispute and just when it is called to guide and animate both the mind and the will.

The sciences, once its wards, have gained their independence, and religion, once its protector, will no longer acknowledge its offspring, and both in mortal combat with each other agree in the neglect of a guardian. But if it choose wisely between mediation and missionary zeal, it will have fewer occasions to mourn the loss of its children.

The first problem to come under review in this conclusion is that of realism and idealism. I have already indicated that the distinction between them is not always what it seems. Partisans on both sides like to caricature their opponents as the only way to proselytize or to obtain a hearing. Idealists adopt a conception of realism which gives them a cheap and easy victory, and realists evade the difficulties of sense perception in a way that makes idealism appear ridiculous. Both schools do not always face the facts of human nature with equal frankness or recognize the difficulties of asserting the position of one or the other party without qualification. Too many associated interests are at stake to make the truth so attractive as it should be. The attitude which I have assumed in this work will be clearly classed by most readers as realistic, although I have been careful not to so denominate myself. I must warn the student, however, that I am likely to protest against any such characterization. It can be made only on very definite conditions, and these are that the term shall be elastic enough to include much that is covered by idealism and that the measure of its meaning shall not be the untutored mind. I would resent equally the accusation that I was an idealist, as perhaps the general spirit of previous discussion sufficiently indicates, though not because there is no truth in it, but because it is quite as liable to illusions as its rival theory. Verbal tags of this kind are worse than useless unless their limitations are fully recognized and clearly stated. The truth is too complicated and too comprehensive to be concentrated in a shibboleth, no matter whether the denomination be realism or idealism. Neither is the combination of these terms any better, except to prove the more cosmopolitan spirit of the man who concedes it. If we could insist, as I think we can, that there is no reasonable difference between the two theories, when we ignore the uneducated mind which has no theories, we could be independent of narrowing terms like these, as the problem of "knowledge" should be cosmopolitan. There is nothing more conducive to narrow-mindedness in philosophy, a quality that goes by the name of bigotry in religion, than the persistent attempt to exhaust the riches in the problem of "knowledge" by dialectic play with these terms. The meaning of the universe cannot be compressed into either of these conceptions, as they must be conceived concretely. Their

content cannot be finally or exhaustively determined by a definition or a single illustrative concept. Whatever meaning they possess can be obtained and understood only at the end, not the beginning of our reflections, and it is useless to attempt the inoculation of any student's mind with the assumption that he must direct his thought to either goal as the condition of intelligent reflection. The consequence is that "idealism" and "realism" are mere playthings for minds that have become lost in abstractions and do not know how to find their way in facts, unless they try to preëmpt their riches by question-begging epithets. I concede them an important convenience for minds that have once conquered the labyrinthian mazes of speculative thought and that can command all its ramifications in exposition of the problem. In this situation they will always take the coloring of their environment and lose that inflexible cast which dogmatism and scholastic logic tend to give them. Away from the facts that illustrate them and make them intelligible, they are only barren abstractions like the distinctions of scholasticism. Hence, as conceptions for philosophic conjuring they are too bare to conceal the tricks which try to mask knowledge in learned dialectic, while a bold insight and a rich judgment equipped with facts of experience can penetrate all disguises and exhibit a more splendid vision than any formal logic working on abstractions. The literature which does not pass technically as philosophy, but which actually deals with philosophic problems is an evidence of this. It is intelligible and inspiring. It is not ashamed to use the vernacular to express its thoughts. It has patience and is willing to take time in the communication of its ideas. It appeals to the imagination. It reaches far beyond the colder analysis of scientific criticism and appeals to that wide experience which is not ashamed to admit the influence of poetry into philosophic reflection. There are, of course, limits to the legitimate use of such influences, as truth is clearer when it is divested of emotional color, though it may have less power. But if philosophy had retained its old human interests it might enjoy the advantages of such a connection in its theories. But it has taken on the critical and exacting temper of science, and eschews embellishment as it would poison. Its "realism" has become doubly realistic in its tendencies to materialistic conception, and even its idealism has lost the warmth of feeling and enthusiasm that characterized Platonic speculation and has adopted the frigid, passionless method and matter of the Kantian theory of "knowledge." It is all a part of the reaction against the emotional view of things that had associated itself with the poetic and religious theories of the world, and has a most healthy influence in so

far as it has conduced to profounder and truer thought. But there is no reason why both the poetic and the scientific side of philosophy could not find shelter under the same covering. Truth has power in proportion to the passion with which it is held and in proportion to the success with which it allies itself with art and morality.

It is often said that realism is the natural theory of the common mind, and that reflection invariably supplants it by idealism. But this is not exactly the way to state the facts of the case. The common mind in reality does not have any theory whatever that can be called by the name. Its conceptions may be what they are represented to be by the idealist, but in spite of its acceptance of certain forms of statement without criticism or analysis its position is not to be taken as something deserving a philosophic name and refutation. What calls itself idealism is the outcome of conscious investigation and criticism, and of the discovery that the naïve judgments of "common sense" possess certain perplexities which demand study and explanation. The type of thought which this naïve position represents accepts the denomination of realism from those who undertake its refutation. As a theory of "knowledge," therefore, realism is subsequent to what calls itself idealism, though the conception denominated by it is not thus subsequent. Its place and function in thought must therefore be determined relatively to the purposes of idealism. Now idealism, whatever excursions it makes into metaphysics and ethics, comes back in epistemology to the propositions which are attempts to give some consistent meaning to the illusions and normal phenomena of sense experience in connection with our natural judgments. Its reaction against "common sense" leads it into forms of statement which must appear paradoxical when they apparently or really deny the existence of an external world. Realism is nothing more than a protest against such a denial, or language that apparently and naturally implies it. It stands for a clear and definite assertion of more than the subject's own states of consciousness, and hence denies solipsism which appears to be the most logical interpretation of the idealistic theory of "knowledge." It is not necessary to review here at any length this old question further than to remark that both realism and idealism are reconcilable in the position that external reality is a fact whether "experience" or sensation is a measure of its "nature" or not. Formulas which aim to correct the ignorant by conceptions quite as anomalous as the uncritical ideas of "common sense" are perplexing are sure to elicit counter corrections, since men are not any more likely to remain patient and content with the paradoxes of

idealism than with the perplexities of realism. The weakness of realism has always been its alliance with dogmatism and its unwillingness to admit as frankly and as fully as it might the need of critical investigation into the judgments of the naïve mind. Its strength lies in the escape from such scepticism as disturbs the practical judgment when it supposes that idealism really interferes with the integrity of convictions affecting conduct. Idealism, on the other hand, has both its strength and weakness in the scepticism which it fosters. Its strength lies in the capacity to question the dogmatic accuracy of "common sense," and its weakness in the appearance of denying the plain matters of fact, and so of confusing the practical maxims of life by statements that seem to dispense with the necessity of reckoning with an external world at all. But when it is found that the idealist regulates his actions on the same assumptions as the realist: that his theory only conceals a sceptical purpose under a more respectable name, and that it is mainly for philosophic parade, it will be seen that the real difference between the two schools of thought is little or nothing more than the distinction between the aristocratic and the democratic mind, the idealist being the former and the realist the latter. The philosophic distinction is only another form of the social chasm between those who do and those who do not correct their primitive ideas, intelligent criticism and scepticism being on the side of idealism and a tendency to faith and dogmatism on the side of realism. There is no other reason however, for the persistent hostility between the two modes of thought.

It is in the ethical field that the general conception of idealism has the advantage, not as a sceptical doctrine, but as a name for the importance of ideals against subservience to sense experience. This is caused, not by the unquestioned truth of its epistemological theory, but by the good fortune that scepticism and idealism are embodied in the same term: for there is no special connection between the critical scepticism of idealism against realism and ethical idealism, except that any reconstruction of ethics will involve attention to subjective considerations. Ideals, however, are quite compatible with the most naïve realism of the epistemological type. Realism in this comparison comes to mean fact or things as they *are*, and idealism the things as they *ought* to be. There is no necessary relation between these two points of view and the epistemological antitheses under the same terms. It has been usual, of course, to connect them by implication; to regard ethical realism as a logical consequence of the epistemological, and ethical idealism as the consequence of the epistemological. But I must con-

sider this an illusion. I concede the fact of this historical association, which inevitably gives the meaning to the terms that this logical connection implies, and I might even go farther and concede that the relation has many natural affiliations. But they are not of that sort which has a logical necessity, as one of them concerns *how* we "know" and the other the relative *values* of *what* we "know." The problem of epistemology is such that the opposition between the affirmation and denial of naïve conceptions of external reality does not imply a similar antithesis between facts and ideals, or what is and what ought to be. It must be remembered also that the traditions and teaching of idealism link it with one notion of objective reality, though it abstracts from sense conceptions in the formation of that idea, and this fact of its relation to a supersensible reality shows that it has not wholly escaped the real which it is supposed to antagonize, and critical examination of it will reveal the fact that it does not even escape the ugly features of that real which it appears so much to fear. Ethical idealism may not require any objective reality at all. It may represent nothing more than a discrimination of values within the area of subjective experience, in which the higher culture of intelligence and conscience is sharply drawn off against the inferior phenomena of sense. But there is also nothing in this that necessarily antagonizes the boldest metaphysics of "common sense" realism, or the coarsest materialism. The temperate and rational habits of Epicurus are proof of this. It is the *man* that determines the ideal and not a metaphysical or epistemological theory. We may admire and obey all the higher "spiritual" ideals and impulses, but consider that they are mere attachments to a nucleus of matter and its functions. There is no philosophic monopoly of the influences that make for progress. Our theories are after-thoughts of our ideals to defend them and do not make them. Idealism is not the only shelter for metaphysics and morality; nor is realism unexposed to similar limitations. Both doctrines are good enough for a certain kind of logic chopping where we have once learned the abstractions that they embody, but they never serve to make intelligible the rich content of life to any who have not experienced it in all its exuberance and fascinating wealth. They are rather mere devices for saving inexperienced minds from the trouble of thinking. Inspiration and education cannot be produced by dialectic variations upon refined abstractions like these. The full measure of experience and contact with facts are the only resource for obtaining what philosophy, without any due sense of humor, has allowed to petrify into these mere fossils of truth. Skeletons may be testimony to the exis-

tence of life that once was, and only the genius of men like Agassiz or Cuvier can reproduce from such relics even an outline of the tissues and functions that played their drama there in the past, and in the same way it will require genius in literature to discover any evidence of former life in philosophic theories like idealism and realism. These are only names for dead issues, if they are made any more comprehensive than the necessity, one of them, for inoculating dogmatism with a healthy scepticism when this dogmatism attaches itself to realism, and the other, for tempering scepticism with a healthy faith in human faculty when it is tempted by extravagances in the field of idealism. But even to do this they must be in master hands. They will not effect it by any process of parotting philosophic phraseology, but only by living through all their details the facts which happen to get a concentrated form in these terms.

For this reason I feel no temptations to share in the universal prejudice of this age for declaring that, whatever one's philosophy may be, it shall be called idealistic. The nauseating habit of assuming that one *must* make his peace with the complacent dogmatism of Kanto-Hegelian idealism by protesting that he appreciates it, when in fact he either does not understand it or must perforce attack it as an evidence of mental virility, is a spectacle that tempts one to rebellion, if only to save philosophy from stagnation in phraseology wholly unadapted to the wants of the age. If the fashion for realism were as prevalent and as dogmatic the same duty would exist as the condition of saving philosophy from another and perhaps more unintelligible scholasticism. Intellectual dry rot can be prevented only by liberal infusions from the spirit of contradiction, "der Geist der stets verneint." When philosophy can only mouth its doctrines in stereotyped phrases having no adaptability to changing experience, it can be appreciated only by those who have first been initiated and its influence does not extend beyond that inner circle. The value of abstractions to this body of the faithful for economy and abbreviation need not be disputed. Such economy and a technical mode of expression are needed in all the profounder work of the sciences, no matter how inaccessible to the popular mind. But science always contrives to explain its meaning in the vernacular when it is necessary to instruct the public. But whatever defense philosophy may have for obscurity within the society of its devotees, it is recreant to a wider duty when it confines its humane objects to the few, especially in a democracy. In aristocratic civilizations the demand on its condescension is not so great. The citizens of such a society are among its votaries, or at least its intelligent auditors,

and the area of its influence and usefulness is correspondingly circumscribed. The rest of the community is governed, not reasoned with. The general ideas that determine the thought and action of the whole are in possession of the rulers and they have the freedom to give them effectiveness, while the ruled are not asked or required to understand, but to obey. Their action is regulated by faith or fear, not by reason, and the duty of philosophy to construct does not extend beyond the few who hold the reins of power, except as it is at liberty to perform a work of grace to the many and strengthen the influences that limit the abuses of power. In aristocratic communities it requires only to moderate the temptations and licenses of authority by inculcating all those ideas that make for prudence, culture, and humanity, in the exercise and application of it. But in democratic civilizations it is neither secure in its recognition nor equal to its responsibilities, if its oracles are obscure or unintelligible, since, as always, it must appeal to the rulers for effect and these are now the multitude. A wide area of influence is demanded of it. It has to persuade those whom an aristocratic society may govern. Science has condescended to do this while it preserves its technical work for the initiated. But if philosophy retires, as it seems to have done in our day, into the narrow circle of the few, it loses its power to control the trend of thought which governs and must govern a democratic people. Epistemology and technical metaphysics have neither interest nor influence for this class, unless adapted to the common understanding and the deepest interests affecting life and action. In such a state the whole field that was once the province of "divine philosophy" is turned over to literature which never fails to make itself intelligible in plain speech or to eschew the language of mere dialectic and logic chopping when it endeavors to convey its thoughts. Circumlocution and elasticity of style are better than technical shibboleths. Philosophy must condescend to make its idealism or realism accessible to the general consciousness, if it expects to survive in democratic times as a moral and spiritual leaven in the world. Its formula cannot stop with a scholastic confession of faith, but must be explicable and intelligible in forms clear enough to determine the ideas that animate the common mind and will. Loss of place and influence will be the price paid for any failure to accomplish this result. Even Kant in his time had to complain that it was neglected, and it is much worse in this age, mainly because it has no message to mankind at large. It is more the function of philosophy than any other discipline, except literature, to cultivate adaptability to the intellectual and moral wants of man. It may be

accorded perfect liberty among its adepts for abbreviation and technical discussion, just as are chemistry and higher physics. But this is no reason why its oracles cannot be interpreted in the vernacular when the justification for its existence demands this. Its decline in the university life of modern democracy is the consequence of this failure to have a mission for the majority who do the governing. The fault, of course, may be as much in those who have to be taught as in those who teach. There may be no willingness to accept a philosophic gospel of any kind, and this is certainly the disposition of the present general public. But the philosopher may also have no gospel to teach, as seems to be the case since Kant who banished all interesting intellectual problems from legitimate speculation and reflection, leaving everlasting talk about "experience" and "consciousness" as the only subject left for the "queen of the sciences." The mission which it can perform depends partly upon its character and mostly upon the genuinely human interests that pervade and inspire its work. It will remain forever obscure and useless, unless it can touch the world's heart with some sympathy and its mind with some vision of general truth and duty. It cannot rely solely upon controversial dialectic dividing speculation into two sharply defined theories one of which is to be attacked and the other defended, with no reconstruction of truth within the reach of practical life. Unless it succeeds in effecting this it will retain no place or function in a democratic civilization which has to be moved from within instead of from without.

It is the tyrannical influence of our earlier and unreflective conceptions upon our later development that is the primary source of all our trouble in philosophy, and the controversy between realism and idealism is only one illustration of the feud that extends over the whole field of speculation regarding the cosmos. In our earlier experience we make no attempt to give unity and consistency to our ideas. We take them as they come and ask no questions. The accident of a confusing and misunderstood situation may wholly distort what the larger experience of the race has reduced to a common datum. Thus Locke and Berkeley changed the meaning of the term "idea" and confused the general drift of philosophic thought. Epicurus adopted the concept of "matter" for the permanent in the cosmos, while Plato had used it for the transient. And subsequent thought has followed the materialists in all their essential conceptions of it as a substance. The attempt to correct these distortions, after they have become fixed in our habits of thought, and when their inconsistency with the general view of language has been discovered, causes a wrench in our feelings, because the

relation between conceptions and language is so fixed by association that the stream of thought is a victim of it, and we can suppress its causal influence only by adopting terms that do not recall up a rejected idea against the truth that is wanted. We have to overcome the automatic habits of our first conceptions by the formation of others out of data which will not instigate the occurrence of the earlier series, and it often seems as if the attitude of opposition to the past was the only security against its domination. Our progress away from this past depends upon our ability to rescue our minds from the thralls of mere habit and the association of ideas. In many, perhaps most cases, this control can be effected only by changing the terms of our thought. Only a few can disenchant the old phrases of their illusions and transform them by transfiguration into the embodiment of new achievements. It is this situation that always gives the charm to idealism. It is the mind's liberation from the naïve possession of uncritical ideas. Realism is the natural conviction of the untrained soul, whether it rises or not to the dignity of a theory, and when it is necessary to correct the aberrations of that stage of culture, it is not easy to give the earlier ideas and their expression the color and tone of a new rapture. The discovery that our minds are as important agencies in thought and action as the real world, especially when we have to conquer the latter for our own ends, and the enthusiasm which the discovery awakens may naturally enough obscure the truth of realism for the moment while we emphasize the functions of thought in culture and achievement. But the time comes when idealism also gets so far away from reality that its dreaming can be checked only by a return to objective facts.

There is a feature in common between epistemological and ethical idealism which was passed by in the consideration of their points of difference and indifference. It is the fact that they both represent the subjective or psychological point of view in the study of the world. They are both anthropocentric as opposed to the cosmocentric position for estimating experience. The cosmocentric represented the dominant tendency of Greek thought and generally affiliates most easily with what passes for realism. The anthropocentric point of view is the modern and to some extent the Christian position. The Greek felt himself under the restraints of a remorseless power that he could not love and was reluctantly forced to obey. He was always sighing for a freedom that he could not possess and had not the courage to extort. The contemplative life was his paradise, whether in his mythology he placed it in the past of man, or in his philosophy he

placed it in the life of the gods. Exemption from toil and pain was his principal desire and the fear of the inexorable power of fate kept him either perpetually complaining against nature or cultivating the virtues of a Stoic as a refuge from despair and as affording him his only hope of meriting the character of a soldier and a man. He dreaded power that restrained him, and he could not learn, as in the prayer of Cleanthes, to reverence it for any benignities, but bestowed upon it a resigned and melancholy respect. The ugly spectre of fate was simply the consciousness of an unbending law that gave him no room for the play of freedom. His love of the aristocratic and contemplative life kept him crying for a free bounty from the universe, and work to win his blessings only appeared to offend the dignity of his nature. It took a democratic civilization to supplant the contemplative by the active life, though this does not always clear away the realistic sense of nature's power to make submission a disagreeable virtue. It only equalizes the struggle while it offers less stimulus to rise above it. But the oppression of external restraint upon a beauty-loving Greek, also more passionately desirous of freedom than any modern man, and as fond of nature as he was conscious of its limitations and forbidding aspects, could only foster that temper of mind which lies between defiance and obedience, a condition which is partly pathos, partly courage and partly despair, and uncolored by any of the features of hope and faith. The revolt against mythology had carried away every vestige of the human in the cosmos, and it required Christianity to restore it in any form whatever. But to the Greek there was no hope of gaining anything by a struggle against nature, though a resigned obedience might lessen the pain he feared and win as much virtue as was possible in a condition of slavery.

But idealism, which turns the mind away from the tyranny of nature to the confidence of man in his own power to fix limits to the restraints about him, to conquer nature while he obeys it, puts a new face on things. Man discovers by it what is in himself to produce the very results which, in his lazier moods, he asks as an unearned bounty of providence. The attention is turned from the outer world of inflexible power to the inner world of consciousness and the freedom of the will to turn nature to account as well as to practice submission. Man can thus come to respect himself, whether he does nature or not, and to secure his happiness by conquest instead of by mere good fortune. Ethical idealism is hardly possible until consciousness is turned upon itself and finds there the will and the way to overcome all external obstacles and to make cosmic law serve his own ends. What

ought to be can hardly be the result of idle looking at things. The spectator of the cosmos can only enjoy what it casually brings him. The man of action may force it to serve him. The consciousness of one's power to make his fortune is the revelation of introspection and the victory is the fruit of courage to triumph over the influences that tend to despair or that repress self-confidence. Idealism thus, in so far as it gives a man command of himself and discovers a freedom which he does not dream of securing in his habit of passive obedience to inexorable laws, shows that happiness is made, not found, and to that extent marks both a superiority and an advance on that realism which is content to be the slave of circumstance. Idealism may be subject to abuse like all other impulses that originate in weak human nature. It may be followed by pride and rebelliousness where humility and resignation were the characteristics before. But whatever restraints experience may put upon its aspirations, it is the first step in man's discovery of his superiority over nature and of his prospect for liberation, while realism is the check that would keep Icarus from losing his wings in an inglorious flight toward the sun and away from the earth.

Denn mit Göttern	For with the gods
Soll sich nicht messen	Should no man
Irgend ein Mensch.	Measure himself.
Hebt er sich aufwärts	If he reach upward
Und berührt	And touches the stars
Mit dem Scheitel die Sterne,	With his high head,
Nirgends haften dann	Never will he fix
Die unsichern Sohlen,	His insecure feet,
Und mit ihm spielen	And with him will play
Wolken und Winde.	The clouds and the winds.
Steht er mit festen	Stands he with fixed
Markigen Knochen	Bold and firm foot
Auf der wohlgegründeten	On the well based
Dauerenden Erde,	Solid old earth,
Reicht er nicht auf,	Reaches not upward,
Nur mit der Eiche	Only with the oak
Oder der Rebe	Or the weak vine
Sich zu vergleichen.	Himself to compare.

In the epistemological field idealism performs the service which scepticism must always give to progress. It disturbs the equanimity of indolent and unprogressive temperaments and offers a rational excuse for ignoring tradition and prejudice. It is not often that scepticism can receive any credit for merit equal to that of faith, but it deserves this consideration and the fact should not be ignored. It will, of course, not be respected by those who are afraid of change and

progressive development. But when history comes to cast up its accounts, scepticism will have a place assigned it in the moral salvation of the race, if it does nothing more than to clear man of his illusions. Though it may not supply or prove any positive doctrine, it is an effective solvent of all the dogmatisms that base themselves upon an uncritical confidence in our sense perceptions. But the fundamental weakness of idealism as a system of scepticism resting on the phenomenal limits of knowledge is that it expects to draw positive conclusions from these limitations. This can not be done. Conclusions are an extension of knowledge when they are fruitful of positive results, never a curtailment of it. Scepticism clips the wings of fancy and holds reason to experience, and where idealism coincides with the sceptical limitations of knowledge, without allowing for any elasticity and progress in the *data* of it, and without admitting some affiliation with the postulates of realism, it forfeits the right to suggest any "spiritual" reconstruction of the universe. It can only play the part of an iconoclast against dogmatism and overconfidence in naïve views of things. But until it makes its peace with the fundamental assumptions of realism, which it is too ready to treat as a mortal enemy, it can offer no gospel but doubt to either metaphysics or religion, though the men that adopt its position may still show allegiance to ethical and æsthetic inspiration for ideals reaching beyond the pleasures of sense. But the idealist can effect even this much only by abandoning mere logical play and dogmas quite as absurd and unintelligible as the quidities of scholastic theology, even though their hidden meaning be true, and making its message as clear and concrete as the facts on which it rests, imbue the general consciousness that rules a democracy with some realizable ideal which can have the scientific strength of a philosophy and the motive power of a religion. Instead of this those who might be the oracles of truth are hunting about the cerements of Kant and Hegel for life.

> Dwellers in dreamland,
> Drinking delusion
> Out of the empty
> Skull of the past.

Whatever philosophy we have must be the product of science, if I may distinguish between them for the moment, whether we choose to call it idealism or realism or both or neither. We shall not discover it in the perpetual exposition of past systems any more than religion will find its truth in tradition and mythology. It is a perpetual construction of present experience, incorporating only so much of the past

as is perennial and recasting the formulas that gather about them, like a ship its barnacles, the growths of false interpretation and association. The days of *a priori* speculation are gone, not because it is wholly false or useless, but because we have adopted a standard of truth which places more value on inductive than upon deductive methods and because the limits of *a priori* speculation are so quickly reached that the only hope for further progress lies in experience with its discovery of the data for whatever extension of knowledge is possible. The mistake of the Kantian lies in placing so much stress upon the necessity of *a priori* truth of some kind that can never be more than abstract and in emphasizing so much the limits of knowledge to experience that he creates the impression that experience has as decided limits for its matter, that is, its facts, as it has for its form, namely, the sensory mode of obtaining it. It is not the *form* but the *content* or matter of knowledge that has the chief interest for man. The idealist should remember that their great protagonist recognized that experience had a content as well as a "form" and that he did not definitely indicate any limits to this content but only to the "form" which it should take, though he was silent on the actual elasticity of this content. Now if the matter of experience have no limits but those of the actual facts up to date, what is there to prevent the accumulation of data that will necessitate more than can be deduced from the formal conditions of experience or from any previous experience not implicating this new result? It is in this discovery of new data that science does its work and supplies both the motive and the matter for all philosophy except dogmatism and tradition. Our progress lies more in the way we conceive the truth than it does in the formulas for embodying it, and hence in the experience that makes abstractions intelligible rather than in the verbal consistency of our present with the past. There is a great value in having truths that survive revolutionary change, and such truths are easily stated and understood, but it is not so easy to adapt the changes of time and progress to them, a procedure extremely necessary in order to utilize what is permanent in practical life. Philosophy must therefore be the expression of the general results of knowledge in each age with the increments that have been won by new discovery. An idealism or realism that cannot extend its meaning to these new conditions and wants is destined to perish in the bogs of illusion and obscurity.

The same general attitude that has been shown toward the controversy between idealism and realism can be taken in regard to that between spiritualism and materialism. The reader may have observed

that I did not conclude the chapters on these two metaphysical theories with any decisive verdict for or against either of them. There were several reasons for this reservation. They all grow, however, out of one fact. This is the circumstance that there is no human interest in the controversy between the two theories except the question of survival after death. The difficulties of any assured conviction on this issue creates indifference to the merely scientific or philosophic problem that may not guarantee or exclude survival. Besides the question of the existence of a soul has been so complicated with assumptions about its nature that the matter of its survival, in addition to doubts from the want of evidence, is affected by all the doubts connected with the problem of the soul's nature which might not guarantee survival of personal identity when that nature was decided. This means that there are always two problems before investigation; the one concerns the existence of a subject other than the brain to explain consciousness, and the other concerns the persistence of this personal consciousness after the dissolution of the bodily organism. This situation makes it prudent not to press a conclusion too urgently until the one question is separated from the other, and as the decisive settlement of it cannot be determined short of the proof of survival, which mere philosophy cannot supply, the only proper course in philosophic discussion is to leave the issue where that method must leave it, namely, in the balance between arguments whose value is dependent wholly upon the discovery of facts to give them cogency and conclusiveness.

Morever, from what has been said about "matter" and "spirit" in the discussion about materialism and spiritualism, and in the chapter on the existence of God, it ought to be apparent that I have no such animosities toward materialism as would lead me to neglect the force of the facts in its favor, and no such allegiance to the term "spirit" or spiritualism as would lead me to expect any better salvation from a bad philosophy than I might get from "matter." We cannot presume that one of the theories shall be defended and then seek for the evidence without also admitting the difficulties on either side of the issue. Apart from that conception of "matter" which is formed from its sensible manifestations and the test of it by gravity, there is no reason for using the term "spirit" even when we have demonstrated that the brain cannot explain consciousness. In its widest import the conception of matter has been so refined and the capacities represented by it have been so extended beyond anything supposed by ancient materialism, that there can be no objection to assuming, so far as mere scientific explanation is concerned, that the subject of consciousness is the

brain, if the evidence justifies it, or that it is some form of refined "matter" or ether, if the evidence is against the organism. In fact, the term "matter" is so abstract that it is useless for any purposes that could not as well be served by any other conception, except that "matter," with its associations, can best perpetuate the scientific spirit and a rational continuity with the past saner efforts of man to understand the universe. But in so far as metaphysics and science are concerned, it makes no difference whether we adopt materialism or spiritualism, unless we mean to declare an attitude on the immortality of the soul. On the one hand, the spiritualist has so long insisted that the "soul" is spaceless and has kept philosophy thereby in such an impossible world for science and "common sense," that it would be easy to lead a revolt to the Epicurean conception of it with our ethereal conception of matter before us, and so leave to the problem of evidence the solution of its survival and not the question of what the soul shall be called. On the other hand, the materialist, not disguising from himself the absence of evidence for either survival, as he estimated this evidence, or for any subject but the organism, has not observed the process of extension and refinement that have gone on in his conception of matter until it might make a good substitute for "spirit." The only thing that has remained untouched by change is the opposition between the two schools on the question of immortality or survival of death. On that question the materialist has shown most of the science and most of the courage, and the spiritualist most of the sentiment and most of the fear. They have divided intolerance of each other about equally between them. But on the mere metaphysical question as to the nature of the mental subject, when it is agreed that it is not the organism, there is no longer any but reasons of association for using the term "spirit" at all. All the problems of philosophy and religion can be solved by the proper use of the term "matter." The only objection to this position is the obstinacy of the materialist, who does not often examine his conceptions critically and who, in spite of his changes in the idea of "matter," still passionately insists that his doctrine is the same as ever, when it is only in the psychological field that this consistency remains, and even this only in that conception of the problem which denies a future life for consciousness. But apart from this question of fact, or of facts that necessitate the assumption, there are none but verbal and associative reasons for continuing the antithesis between the conceptions of "matter" and "spirit."

The real opposition between materialism and spiritualism turns on a matter of fact and not of metaphysics. It was, of course, originally a

resort to metaphysics by both parties to prove a real or supposed fact in regard to survival, but the rise of scientific method discredited *a priori* metaphysics as a means of proving any future facts whatever, except hypothetically on the same conditions, and left philosophy only the power to systematize the knowledge we have and not to predict the future on any other grounds than present experience of facts that justify it. Science drew clearly the distinction between the evidential problem in regard to a future life and the metaphysical problem of identical or different subjects for physical and mental events. Both problems may be treated evidentially, as they must be, but the evidence in each case, if it is to have the most effective cogency, and if it goes beyond supporting a mere possibility for independent subjects, must be of a different kind in each case, the conclusion, apart from the actual isolation of an individual consciousness from the organism, being fairly well balanced between the two views, while any conclusion in favor of an immaterial subject for consciousness would leave wholly undecided the question of personal survival after death. All this shows that there is no adequate reason for passionate controversy between the two schools on the metaphysical, but only on the religious question of fact. The passions associated with this belief in a future life could well attach themselves to the metaphysical theories, as long as they were the only means of arriving at the desired conclusion. But when the problem became a matter of fact distinct from the mere existence of a transcerebral subject for consciousness, to be settled either before the metaphysical question could be answered or as a condition of any metaphysics other than materialism in some sense of that term, the continuance of the philosophic controversy was an anachronism and had no excuse except that of intellectual inertia or the desire to evade new issues, or the old issue in a new form. For the problem of immortality is perennial, persisting with every change of intellectual development, and divides human nature far more deeply in respect of temperament than in argument. These temperaments may be called the emotional and the scientific. The one will not surrender and the other does not apparently need the belief. Their relation to the doctrine and the various interests in life as affected by it needs a careful analysis.

The belief in immortality has always been more of a passion than a philosophy. There have been attempts enough to give it a philosophic status, but only when this method was considered the criterion of truth. The influences which have kept it alive have in reality been stronger than any philosophy. The belief originates in impulses which make the doctrine one of immeasurable tenacity and also one of great power

whether for good or ill, because it lends itself so easily to the imagination for coloring it with whatever ideals our caprices may form, as both ancient and mediæval conceptions abundantly prove. It may arise from either of two instincts; from the personal desire to live and prolong the pleasures of existence, or from the philanthropic and social influences that center in human sympathy and love. The one is purely egoistic and the other is altruistic. These influences may even be variously mixed according to the character of the individual. But neither of them, though it keeps the passion alive, is anything like a scientific or philosophic argument, but only a moral force to be reckoned with in the adjustment of our attitude toward others. One of them, the egoistic, is exposed to all the immoralities which a purely personal interest in life can inflict upon freedom of thought, and the other, the altruistic, to all the sentimentalities that concentrate about fine characters which often have less vigor than the struggle for existence requires. The belief has not been an unmixed good. It did not save the middle ages from the most frightful orgies: in fact, it might be said to have been the primary cause of those religious persecutions which rivalled the most sanguinary cruelties of savage life. The tracing of the belief to the most gentle and divine of beings was not sufficient to restrain the most extraordinary passion for inflicting pain. No intolerance was too intense for its hatred of scepticism and liberty of thought and worship. As if the tortures for eternity in a marl of burning sulphur were not enough for the failure to assent to false propositions, men must needs add the same tortures to the present life on the pretext of saving a man's soul against his own will and power which were taught by a doctrine of predestination to be helpless! No doubt there were often other and associated influences at work, but the saving of the soul was the pretext for the policy of the state and the church, and ordinary history sees no other influence to record than the sacrifice of humanity for a belief without scientific or otherwise adequate credentials. Its beneficial effect on the race can be secured only when it is tempered by the morality which is founded on the brotherhood of man and which is indifferent to the personal interest of the man who feels that brotherhood. This would indicate that common terrestrial morality is the most important impulse of the two and the condition of the other having any value at all for life. I do not deny its moral value for the man whose humanity is the first impulse of his nature. But he is in no need of science or philosophy to awaken his moral instincts or to support a belief that gets all its beauty from the worth of virtue in a world where its achievement is not

always the effect but the cause of a belief in a future life. It gives the moral and humane man power to arouse higher ideals in others, but it does not insure the strength to realize them. It is not the mere belief in survival that can guarantee morality, but the kind of existence offered us with a conception of the relation between the present and the future. This is apparent in the whole history of philosophic and religious thought on the subject. Hence while I do not deny immense capacities for good in the doctrine of immortality these are subject to qualification, and I doubt whether we have in history, when taken alone and apart from moral ideals not always created by it, any satisfactory evidence of its beneficial influence on conduct. Most men and women, as we can see in the history of the church, regulate their lives by impulses that they regard as natural and seek to form that conception of the future which these impulses suggest. The chief importance of the belief lies in its support of the relative values that our moral and intellectual development place upon consciousness and matter. But the personal equation and the selfish motives which determine or may determine our present lives may always associate cowardice and weakness with the belief. This is specially true of large classes of believers. But the scientific man, whatever his defects of motive and character, has a healthier courage and judgment. He may feel for man and he may not like the ugly order of nature and suffering any more than the religious mind, but he takes an impersonal view of the case, will not "cry over spilled milk," or go about like a puling child because he cannot obtain from nature all he would like. He grimly faces facts and whatever bargain has been made for him with the universe he keeps faithfully and without resentment. He may sometimes or often display none of those humane interests which are better than science or knowledge: he may be ambitious for fame or social standing, and may trample remorsely upon those feelings in fine natures whose moral sympathy with man is stronger than the intellect or the will to face ugly facts. But he is not troubled with the circumstance that he cannot have his own way with nature, though this spirit may be as bad as it can be good. He swallows his pride and emotions, strengthens his will, and trusts his conscience, where he has these qualities, while he pursues farther inquiries to wrest from the universe its secrets which, whether intended for good or not by the investigator, may result in the welfare of the human race without regard to the question whether this result is for present human culture or for advantage to an indefinite life beyond the grave.

Mit gier' ger Hand nach Schätzen gräbt,
Und froh ist wenn er Regenwürmer findet.

The stoical spirit will "hunt after treasures, but will be content if it finds only earthworms."

There is an important weakness in the position of many believers in immortality which ought to be noticed. There is a wide tendency to come to the belief on one ground and to defend it on another. The influence which makes our arguments respectable is determined by the spirit of the age rather than by the actual basis on which they rest. We may actually accept a doctrine on faith and attempt to sustain it on reason, or we may allow our general view of the cosmos and its rationality to decide the matter for us against pessimistic beliefs, if it cannot be regarded as rational, and then resort to something else to sustain our contention. There is no objection to reliance on faith or emotional considerations, if we do not pretend to give them a weight and cogency which they do not possess. They can have no more power than the slightest inductions based upon nothing more than our feeling that the cosmos has no rational meaning to us without the belief. If we state it so, and adopt no policy of intolerance toward those who either do not feel this view or demand stronger credentials for belief, there can be no criticism of this attitude. But scientific and philosophic arguments, where accessible, may be, and I think are, the proper means of assuring conviction in this age when the standard of belief is so high on all questions. But there is no use to convince ourselves even with these unless they have all the power claimed for them. It is the real or boasted merit of the rational philosopher that he subordinates his beliefs and the degree of tenacity with which he holds to them to the character of his logic and facts, and will not allow erroneous reasoning to prove what is in fact a mere general moral judgment accompanied by various emotions. As I have already indicated, the belief or the hope of survival, where it tends to have any general tenacity at all, and is not a mere personal wish to live, is a reflex of a pure and lofty moral nature, assuming that it has no other credentials. I do not deny this influence a certain worth, perhaps of much importance, though the right to persist in it is subordinate to philosophic and scientific considerations. What gives it the weight that I concede will be remarked after indicating why I do not attach much weight to the moral argument of Kant in favor of immortality. This was based upon the disparity between virtue and happiness in the present life. Duty demanded, thought Kant, more than it was possible for man to realize in the present, and the natural relation be-

tween virtue and happiness, its proper reward, being unrealized in the present, required a future life to effect it. I concede at least some plausibility to this argument as reflected in the consciousness that a rational world demands such a relation between virtue and happiness. But Kant assumes what his philosophy does not provide but rather discredits, namely, the rational nature of the world. But the fact may be that the world has no other rationality than that which favors the conquest of happiness by virtue in the present order and not complaining if we do not win. Kant was too much influenced in his judgment of the argument by the conceptions of rewards and punishments entertained at his time in relation to a whole system of alleged virtues which, in fact, have no such importance as was claimed for them. The connection between virtue and happiness, as conceived at that time, was infected with the artificiality of the theological temper of the age and there was less room to recognize both the true ethical ideas and the consequent natural relation which should exist between the two things named. Kant inevitably exaggerates the disparity between them by implying that there is more virtue and less happiness in actual life than may be the fact. We need to estimate the relation between conduct and consequences in the present world less from the point of view of rewards and punishments and more from that of natural causes and effects, recognizing that often the result is the same for a mistake as for a sin. This paradox in the system may be due only to the falsity of much of our ethics. Many of our assumed duties are merely social and conventional, not cosmic affairs, while many of the cosmic pertain, so far as we know, only to the conditions of the incarnate life. In social and conventional matters rewards and punishments have to be more or less artificial, and in cosmic matters they are natural consequences of action. In our conceptions of ethics the two types of facts become confused and many of our moral inequalities of which we complain are due to this confusion. When the one type is distinguished from the other there may remain the mistakes and their consequences as difficulties in the way of supposing nature rational, but this would only shut Kant out of expecting things any better in another existence under the same general governance. It is useless for him to put the rational connection in the next life, if he expects us to accept that as any better accredited than the present. If the rationality of the present life is discredited by the inequality between merit and deserts there is no reason in experience, which was Kant's standard for measuring truth, for supposing that the next will be any more rational than this one. The next might be better, but we could hardly ex-

pect it to be framed on any radically different principles than the present.

I am quite willing to admit that there are inequalities in the present life that need righting, according to standards of ethics not conventional, but I do not see that their existence is an evidence of a future life to right them, as this assumes that the cosmos is more rational than we have any evidence in experience to believe. I rather think that Kant did not analyze and state the moral argument correctly. I do not think that it should be based upon the inequalities between virtue and happiness, but on the inequalities between the moral law and natural law, that is, between what we are compelled to value and what nature actually seems to value. We are obliged by our very nature to place consciousness, involving intelligence and morality, above mere matter in our action toward progress. Every achievement which we insist upon as necessary to any and all progress is conditioned by consciousness in some way, or the phenomena of consciousness are those which we wish to keep persistent. That is to say, we estimate the existence of consciousness and its achievements in intelligence and morality as superior to matter and its phenomena, and we have to do this if we make any progress. Now we also estimate the permanent more highly than the transient. We depend upon it for our development. Ever since Plato it has been the permanent that has taken the most important place in ethical values. As we place consciousness above mere material facts in its character and importance we must naturally ask whether there is any tendency for this fact to persist in the order of things in the form which gives it a personally ethical value. We observe that matter is eternal. The doctrine of the conservation of energy shows that matter is permanent, and if nature does not confer an equal boon upon personal consciousness it adopts a policy in favor of the facts which our own progress imperatively depreciates in comparison with those it must estimate most highly. Nature seems more careless of consciousness than of matter. What is highest in our moral nature in the present life is apparently held in an inferior estimation by the cosmos. This situation is a fact showing one half of the present order quite rational and the other half just as irrational. If a future life be a fact then the whole system appears rational, at least in the fact of its preserving consciousness as well as matter. The discrimination which the moral law makes shows that the present system is not wholly irrational, but its rationality would seem to be very imperfect, or such as it had would be rendered nugatory, if personal consciousness were not granted an equal rank with matter in the proc-

ess of conservation. We have to adjust our conduct to the law and order of nature, and if that order does not make consciousness with intelligence, emotion and morality permanent we can hardly be blamed if we regulate our actions according to material considerations which are the only ones presumably respected by the cosmos. These do not prevent prudence in conduct of an hedonistic type, but they do show that there is no necessity of reckoning with a future spiritual life, if it is not to be. A materialistic life is always the natural, the logical, and the necessary consequence of a materialistic philosophy in the long run. If nature does not respect consciousness as much as matter, we have only the present to take account of and this alone will permit actions that a future life would not, at least from the point of view of knowledge. It is just this condition of the case that gives Kant's moral argument its force, and not the question of rewards and penalties. It would not be felt where the moral nature has not once and fully felt the moral law which simply demands that the cosmos be made as rational throughout as the present and as the ideals which it creates suggest as possible. This is why the natural reflex of a fine moral nature is always on the side of hope and faith, if it can free itself from those conceptions of such a life which have both weakened the belief and depreciated its value.

It will be seen then that, with all the difficulties, weaknesses, doubts and limitations, the belief in a future life has its importance. Or rather the credible and proved fact of survival would have much importance for civilization in that stage in which its ideals require this additional motive to give them the power they need and which would lose their imperativeness, if the doctrine were displaced. No doubt we should be stronger if we could respect the moral law without this faith, but the majority of the race can look at life with more encouragement if they know that their highest duties and ideals are as much respected by the order of the world as they feel for them. The value that is placed on personality in comparison with matter must suggest the desirability that the more ideal of the two should be preserved so that duty and the realization of its object should coincide, not so much as a concession to the idea of reward as to that of a rational consequence of the relative value that we must place upon personality and matter. Any man who has a moral ideal involving the highest development of consciousness, whatever he may think about the evidence for survival, must frankly recognize the desirability of it in its ideal form and the different view of man's relation to the universe which it would indicate. It is all very fine to put on a brave face and say we do not care

for it, when about the only reason we have for assuming such an air of courage and bravado is the fact that we have to confess the want of evidence for it. We all like to appear indifferent when there is no hope. Self-control is a most important duty and so is resignation, but this fact is no reason for pretending to hold that survival is not desirable, if it is not a degenerated condition. Healthy natures will not whimper under disappointment, but will endeavor to make the best of a bad bargain. But in spite of the necessity for being strong in such circumstances and contenting one's self with morality and the absence of hope, there is not a serious sceptic that would not frankly admit that such a fact as survival from death, assuming that it carried with it any sanity of mental condition, would change man's attitude toward the cosmos and represent its order in a more favorable light than materialism. Respectability may have more to do with making us stoics than real virtue. Courage is a safe quality when cowardice suffers all the pains and runs as many risks as bravery. Hence there is no use to pretend moral indifference to the question when sound judgment must concede that, hypothetically at least, survival after death would put a more ideal construction on the policy of nature or Providence than annihilation, assuming that life of any kind has any value. We might find it necessary to give up hope, no matter what we thought of the case, but the necessity of being brave is not a reason for denying the moral value of the doctrine under proper conditions, even though it is only the result of the morality which it in turn encourages and perpetuates. Pretence of not being interested in it because we cannot prove it, though it would color the existence of morality with a fine stimulus, is no better than a passionate desire for it. It looks and sounds heroic to plead for stout and brave hearts, but that language and the mood it represents only masks the very value which I am contending for, and if we cannot be stoical without tacitly confessing the desirability of what we cannot get, it might be a higher virtue to avoid hypocrisy in the matter. Man may easily forget the fable of the fox and the grapes when he talks about immortality while he shows a passionate selfishness in the pursuit of wealth, fame, social eclat, respectability and freedom from toil, and neglects all the human sympathies that might redeem the present life from many of the features that induce the sceptic to impeach nature. Scientific reputation is not a protection against selfish impulses, even when it enforces allegiance to facts against what seems to be a human interest. Obedience to logic and fact is a duty as well as a necessity when it comes to the inevitable, but this does not involve any necessity or obligation to pretend that the

universe is better without than with the preservation of personality and the best ideals that ever influenced human action.

It is easy, however, to abuse the belief, as I have already indicated. Christian thought was a complete reaction upon the despair of Greek life. Greek ethics were wholly secular and not religious. In fact, after the decline of mythology, the ideals of Greek civilization were wholly æsthetic and political, never of the religious type that regulated the present solely for the future life of the soul. Christian thought placed the central point of human interest in another world after death. As a consequence it neglected the present life, except so far as it was a means for the next. The two types of thought were just the opposite of each other, the one sacrificed the future life to the present and the other the present life to the future. Scepticism and materialism, however, have weakened the faith in immortality and left only the social aims of Christianity to take its place. There has been an unquestioned need for this development in order to balance morality against the abuses of a belief that had formed more definite conceptions of the hereafter than any facts justified and made it necessary for healthy minds to cultivate virtue without a too insistent expectation of other reward. The reaction against "other worldliness" was a necessity to secure proper attention to our natural duties which are primarily in the present life, even if they are in any way related to the future. The value of the belief in survival depends not so much upon the future considered as the aim of the present as it does upon the conduct of the present with the future as a consequence. The duty is not so much to work for the future as to work for the highest ideals of the present with the prospect of the future, if that has any credentials, and to rest satisfied if it has not the sufficient evidence in its support.

In concluding the chapter on the existence of God I deferred some observations on that problem until they could be made here. I had in mind some remarks on the passions that cling so tenaciously to mere formulas about God. In trying to smooth the way for a reconciliation between science and religion on the question of the divine existence, I pointed out that the conception of matter had become so refined that it might easily be substituted for God, in so far as philosophic use and conception are concerned. But the religious mind will not easily accept the suggestion of any such substitution. The name of God to it is hallowed by too many associations with the highest ideals of personality and the aspirations of man to divest it safely of its power to invoke respect, fear and reverence, as its identification with matter would appear to do, its associations being free from all spiritual flavor. It is

true that it has not been the same in all ages, and never assumes more than what man himself has achieved in his development, always reflecting his best, and sometimes with it the worst that afflicts his nature. The Greek gods embodied all the moral defects of that civilization and differed from the Greek himself only in the superiority of their power and the force of their passions. The Judaistic and Christian conceptions of God were as various as the stages of their development, now cruel and merciless and again tender and righteous. In the middle ages the name was not sufficient to restrain any impulse except humanity. In fact the conception of God was best represented by the dire cruelty which he was said to visit upon his creatures if they did not assent to certain unbelievable propositions. The doctrine of eternal punishment, embodied in the idea of the most frightful tortures and pictured with unrivalled savagery in Dante's *Inferno*, and supplemented by a theory of arbitrary grace and predestination discriminating between the saved and the lost without any regard to free will, holds up to our vision as ugly a spectre of inhuman and immoral power as ever darkened the judgment of man. I know that among the finer intellects, even in the interpretation of these doctrines, there was a spirit that moderated their repugnance and tempered them to more approved ways and means, while here and there noble minds kept alive the spark of humanity and justice until better times. But the superficial character of mediæval history, its savagery in war and politics, together with its idea of the terrible retribution for sins that deserved more pity than punishment, that is to say, the annals of the past and the prospects it held out for the future, require us to go very deeply if the conception of God entertained by them could shed any lustre upon either history or hope. The fact that we find the conception purified by the progress of man and tending to represent the best moral achievements and ideals of his development shows here as in the question of immortality that it is the prior moralization of man that moralizes and idealizes his conception of God. "Blessed are the pure in heart, for they shall see God." Hence the primary matter is not a theistic theory, nor an atheistic, but a pure heart which will affect our view of the universe, whether we regard it as good or bad, and our actions will be determined by what is within more nobly than by what is without. It is not every man who says God that shall be saved, but he that doeth what a true ideal makes imperative. The intolerant demand that a man must believe in the existence of God, in the sense in which it has so long been represented as a condition of being moral or religious, simply mistakes the order of nature and indi-

cates the last refuge of the spirit of authority. I do not deny a value in the use of the idea, as it is a very complex one, but it must be qualified by the development of the man to whom the conception appeals. The fact that it is man's moralization that purifies the conception of God only proves the extent to which the idea may become anthropomorphic, as our own minds must be the measure of what we conceive. Reflection and criticism may eliminate objectionable features, but the natural temptation to anthropomorphism, as perhaps the necessity of it in some form, is such that it is more important to imbue the human mind with the right ideas and the will with the right motives than it is to save philosophic theism from mere speculative impurities.

To correct the tendencies to individualistic anthropomorphism we need to test our ideals by reference to the totality of the phenomena which they are supposed to embrace in the scope of their action, and this duty brings us to face all the facts as the data by which we shall measure the character of the causal agency at the basis of things, with no more right to anthropomorphize it than we are allowed to anthropomorphize everything under the limitations of criticism. In the idealistic philosophy everything is anthropomorphic. Since all reality has to be seen and understood in terms of human nature, there can be no objection to a definite characterization of the Absolute, because it must be interpreted by what it does, and if the moralization of man in the process of evolution is the work of the Absolute in any respect its character is to that extent determined in spite of the anthropomorphic elements in our ideas.

But to return to the main point. It is not a theistic theory, as usually understood, that is the primary thing to be established, but the moralization of man as a condition of making such a conception useful. It of course reacts on character, but the appreciation of an idealized deity is necessary in order to give it any moral efficiency, and this appreciation involves some prior moralization as a condition of accepting the objective existence of the ideal in anything else. I have already remarked that the cogency of the arguments for God's existence depend more upon the conception of God which we entertain than upon the method of arguing the case. The material content of our conclusions is as important a fact as the formal process. Our method may be faultless and our conclusion a *non-sequitur* simply because it represents more than is contained in our premises. This means, of course, that less importance attaches to the name of God than to the facts of the cosmos which are supposed to have a cause. The name cannot safely be used for any other purpose than to express these facts or the

law underlying them. We shall have to discover the general plan, or the various parallel or convergent plans of cosmic evolution in order to endow the conception of God with that use for science which it has ideally for religion. The difficulties here are unquestionably great. The evidential criterion of science is so rigid and exacting that it imposes an unusually severe task upon inquiry, and the tendency for a century has been to trust no other criterion or authority. Science has taken the place of philosophy, with a method that subordinates *a priori* to *a posteriori* considerations, and thus insists upon the study from the point of view of facts. I have shown that the supreme method of proof in science is the Method of Difference, or isolation, the Method of Agreement always requiring more or less suspense of judgment in forming convictions.

Now if God have an organic relation to the universe it will be impossible to "*prove*" his existence absolutely by scientific method, because he cannot be isolated or separated from it. He is too integral a part of it, on this supposition of his continual support of it, to apply the method of difference to the determination of the result. The method of agreement would be applicable to sustain such possibilities as the facts and that method will support, but will always leave much to variations of individual temperament in the determination of belief, as it can give only various degrees of probability. This procedure might go so far as to decide the balance against scepticism, when it did not wholly remove that influence on cautious minds. The convergent effect of all facts and the influence of moral temperament might conclude in favor of a possibility or a probability and the mind remain content with that where it could not attain certitude. But in any case, whether for proof or presumption, there must be evidence sufficient to show an intelligent and moral tendency in the course of things to estimate the character of the Absolute by what it does, and so to make the conception of God, as that is contrasted with "nature," agreeable to the demands of our highest intelligence and morality. There is only one way open to us to effect this, after realizing the enormous difficulties in the way of scientifically proving the existence of God by either of the methods mentioned. This is to make probable that the order of the world involves the preservation of personal consciousness. It is the struggle of the human mind between its ideals and the discoverable tendency of things toward materialism that gives the sting to scepticism and tortures those who wish to create an appreciation for the highest spiritual life by showing that nature is on the side of it. To feel that the cosmos creates impulses and obligations

which it has no intention either to reward or to estimate as highly as it does the impulses which that ideal imperatively treats as morally inferior, is to place ourselves inevitably where we must judge the world by that standard. If man could give the immortality of the soul, that is, its survival of death, the same probability that many of his widest scientific truths possess, he would find himself in a position to be less passionately interested in the theistic argument and might find himself conceding it without resistance. If he found the actual order of the world on the side of his best ideals, the reflex of this fact would be to bring the conception of God into closer relation to the idea of nature than it has ever been since the controversy arose between Christianity and Greek philosophy. Such a result would show the conservation of personality to be equal to that of matter and a part of the same scheme, and the technically theistic conclusion would either follow as a natural consequence or be easily held in abeyance for further knowledge. To be thus conscious that duty and humanity are estimated by nature as they are by the best men is to remove the attack on the world for not being divine, and though the mystery of apparently unjust pain would still remain to trouble fine intellects, its savagery would be mitigated by the hope of final victory over struggle and for mercy. The conception of God as a personal being would more easily adjust itself to such an order without being made any longer antithetic to nature, which after all is nothing but a name for facts divested of all presuppositions of causes. We deceive ourselves when we talk of "nature" as a cause. Neither "nature" nor "law" *do* anything. They are mere names for what is *done*, and the cause remains a quæsitum unless it is given directly with the event or events caused. The perpetual scientific reference to nature as a cause is based upon an illusion and owes its cogency with most minds to the readiness with which even theism conceded it causal implications. But where it is not a synonym for gross sensible matter and where we have to assume that supersensible matter, if ether is called this, is not distinguishable from spirit as the basis of phenomenal reality, it is worthless for combating the conception of God, especially if we should ever render it certain or probable that the preservation of personal consciousness is a part of the world's plan. The reflex influence of such a fact upon every individual man who realizes what the moral law commands for his ethical life must be to treat the conception of God quite as sympathetically as he would any generalization representing a cosmic order satisfactory to reason and conscience, although he may not easily see the ideal in all the individual facts, any more than a child sees it in all the acts

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of a parent leading to a desirable end. It might make the moral forces of intellectual men more effective if they could prove as much as they believe, but in the absence of such proof they can only try to console themselves with the hope that things are better than they look.

So lange wir vertrauen	So long as we can trust
Auf uns'ren eig'nen Muth,	Our courage firm to hold,
Und hoffend vorwärts schauen,	And hoping forwards look,
So lang' ist alles gut.	So long is all for good.
Und sei dies Hoffen, Sehnen	And if this longing hope
Auch nur ein Schöner Traum	Is but a fairy dream,
Zu trocknen deine Thränen	To dry our bitter tears
Gib ihm im Herzen Raum.	Give it a place in life.

Some of us, however, will not do this without evidence. But *quasi* apologies for our ignorance aside, the primary condition for viewing both immortality and God with proper respect is the actual morality which is supposed to be conditioned by them, and it only adds to one's distress if he loses faith in the moral law because he feels sceptical in his metaphysics. When a man endeavors to prove the maxims of morality by philosophic defence of the existence of God and of a future life, he shows that he accepts the truth and the value of that law prior to the proof of it, so that its integrity is safe. He relies upon his insight and not upon his logic.

> Ein guter Mensch in seinem dunkeln Drange
> Ist sich des rechten Weges wohl bewusst.

A good man even in the darkest hours of distress is quite conscious of the path of duty. The priority of moral insight does not imply any indifference to or impeachment of the value of theistic belief, but only the condition of making that belief useful. Unless God represent in himself the moral ideal, he is nothing but the embodiment of arbitrary power such as the Greeks thought their gods, and hence scepticism with regard to them created no distress. Theism and morality may act and react on each other, but man can never attribute to his divinities any qualities which he has not previously discovered or idealized in himself, and these will be some form of power and intelligence. The only rational object that he can have in so attributing them is the desire to indicate the existence of some law or agency in the system of external things which has to be respected in his action. But the difficulty which he has to meet in the assertion or belief in such an agency is that which is created by the absence of clear evidence for the real existence of the ideal being which he would place at the basis of the cosmos for the purpose of justifying the hopes and faith he entertains

as to its outcome. If he were not too anthropomorphic, as I have already remarked, his difficulties would be less. But all that he can do is to respect his ideal and to search for the facts that may illuminate the course of nature with that beauty and goodness which has always passed for the divine, whatever we may choose to call the cause that supports them.

> To follow knowledge like a sinking star
> Beyond the utmost bound of human thought.
> To sail beyond the sunset and the baths
> Of all the western stars until we die.
> It may be that the gulfs will wash us down:
> It may be we shall touch the happy isles.

But since the recognition of the indestructibility of matter and the conservation of energy it has been impossible to accept a theistic view of things that did not admit the immanence of the divine in the cosmic process, and the only way to give this any spiritual character at all is to find explicit evidence that consciousness cannot be explained by brain activity alone and that there is something besides the gross matter which we sensibly know in the organism. It may be anything we choose to call it, but once established it leads inevitably to the demand for a unity at the basis of both matter and mind as we know them. It will not make any difference what we call this, provided that its law of action respects human personality and its ideals.

A word on the subject of Pantheism is perhaps necessary in the discussion of the theistic theory, since it has been considered in the history of philosophy as especially opposed to religion and a theistic view of things. There was some antagonism to Pantheism during the middle ages when it was discovered that the Platonic conception of God was that of an impersonal reality. But the illusion regarding Plato's doctrine of immortality sufficed to prevent his pantheistic conception of God from being dangerously heretical, a fact of some interest because it shows that the interest we have in the assumed personality of God relates solely to the relation of that idea to immortality if it is not guaranteed by natural evidence. But when the conception of God as a personal being was necessary to protect the belief in a possible survival from death, the doctrine of pantheism appeared very different to the religious mind, and as Spinoza revived in all its logical severity the monistic conception of the Absolute as set off against the monotheistic conception of God distinguished from a pluralistic cosmology, it was natural to feel the antagonism between the two points of view, especially when it was remarked that Spinoza had no clear

ideas on either the personality of God or the doctrine of personal immortality.

But I must consider this antagonism to the monistic and pantheistic conception as wholly mistaken. I do not consider a single philosophic theory of the cosmos as in the slightest opposed to religious views, or to the personality of God and to the immortality of the soul, except modern atomic materialism. The supposition that they are incompatible comes from the general theological acceptance of one interpretation of the doctrine of Spinoza, who in fact may be and is interpreted by some writers as having held to both ideas. What Spinozism opposed and had to oppose was the Christian doctrine of the "spiritual body" which occupied space. Spinoza had adopted the philosophic theory of Descartes in regard to mental and physical phenomena, and this required him to regard the mental as spaceless or unextended. If personality were conceived as essentially extended of course Spinoza denied it and had to deny it to be consistently Cartesian. With him personality had to be conceived as a stream of consciousness, or as not existing in any sense but the physico-legal sense in which it applied to the human organism and all its properties and functions. All that is needed to get out of difficulties in this question is to distinguish between "person" as a name for the soul and "personality" as the name for its manifestation in the functional unity of consciousness and its stream. Accepting "personality" in this last sense, the real import of it to most scholastic philosophers, and remembering that Spinoza affirmed thought or consciousness of the Absolute, we see that he essentially admitted all that the theist desires in his conception of God. He also affirmed extension of the Absolute, though he made the two attributes, consciousness and extension, parallelistic in their nature. But the function of thought or consciousness affirmed of it makes his pantheistic doctrine consistent with all that is essential to theism.

Nor could he escape the doctrine of personal immortality, except as it was conceived in the doctrine of the bodily resurrection in which "personality" was associated in its meaning too closely with the idea of extension, and the body was not imperishable. But as his pantheistic doctrine made all phenomena modes of the Absolute; as he could not appeal to the postulates of atomism to make consciousness a function of composition; and as he had to suppose the same relation of consciousness to the Absolute in all its stages, it was only a question of fact to determine whether the personal stream of the individual survived or not. There was nothing in the pantheistic conception to make it impossible, so far as the nature of the Absolute was con-

cerned, especially as one of its attributes was consciousness. Besides the analogy which we have in primary and secondary personalities, subliminal and supraliminal mental phenomena, shows how we might conceive the relation between our own individuality and the personality of the Absolute, though I have no intention of urging this analogy as representing the facts. It merely indicates that two distinct personalities may exist side by side in the same subject, so that we do not violate any known principles when we suppose the Absolute to have a personality distinct from that represented in our own individuality and personal nature.

All these general questions between realism and idealism, materialism and spiritualism, agnosticism and theism, are summarizable in the relation between science and religion which may be taken up as the two great antagonistic modes of thought from the earliest times. I shall not enter into any technical definition of either of them here, as I am not concerned with a critical examination of their conceptions for special purposes, but only with the general spirit represented by them. Religion is broadly conceived as a creed, a sentiment, and a cult, while science is as broadly treated as a creed about the cosmos and its laws of action, minus sentiment and a cult. Religion has been variously related to faith and reason, and science to reason only, in its attempt to understand the past and to predict the future from what it learns about the present. I shall not go, however, into any careful examination of their conceptual relations philosophically considered, but content myself with the simple remark that the general spirit of science is respect for facts while religion is essentially identical with poetry. In fact, I shall here treat religion and poetry as the same, distinguishing, as the age has begun to do, between religion and theology, the latter being a philosophy subject to the vicissitudes of human opinion while the former is perennial and embodies the emotional attitude of man toward the totality of things and their moral outcome, and which, whether conscious or unconscious of its anthropomorphic character, may even touch the spirit of science with inspiration and power. Hence it is not the abstract conceptions of science and religion with which we have to deal, nor merely with certain clearly defined functions of mind. Both of these may easily be harmoniously adjusted, if the subject matter to which they relate is consistent one with the other. But it is the *man* of science and the *man* of religion, with their complex temperaments that stand so opposed to each other. Or perhaps better, it is the general mass of ideas and interests gradually selected and consolidated on each side by the developments of history that constitute the battle ground of these two enemies.

It is with these we have to treat in the effort to adjust their differences. The terms religion and science simply stand for these two sets of complex temperaments and conditions.

It is impossible, however, to compose the differences between these two tendencies without more or less criticism of both sides. Reconciliation cannot be effected without mutual concession, and it is the writer's opinion that most of this concession will have to be made by the champions of religion. Science will be required to yield something to those feelings which make existence serious and excite reverence, but religion will have to depend upon science for its creed.

It has always been the peculiar characteristic of religion that it has been especially conservative and science liberal and progressive. There may be something inherent in this tendency for religion, as it is certainly inherent in the nature of science to be liberal, since it is based upon the study of facts in the everchanging present and not upon mere authority and tradition about the past, or upon hopes about the future. I am inclined to think, however, that the conservative instincts of religion are due more to hereditary animosities than to the nature of the mental needs satisfied by it. But whatever the reasons, it has been in some way connected with losing causes more than any other tendency of the human mind, or has resisted change and intellectual progress more than any other system of beliefs and feelings. No doubt this tendency was distinguished by the tenacity of certain beliefs like those concerning the existence of God and of a future life, and their association with a vast system of dogmas on both cosmic and philosophic questions, so that the whole seemed to be threatened if the integrity of any part of it was affected. But it was first the misfortune of religion that it confided its protection to doctrines which were evanescent and which became the prey of the changes effected by science, while to save itself destruction at the hands of progress it resorted to the use of political power and persecution. This policy describes its history for centuries, and the same spirit is not yet wholly defunct. It has ceased to burn heretics at the stake, but it does not always relax the spirit of intolerance as is incumbent upon a power that has suffered so many scientific defeats. It has simply refined its methods of persecution. Wherever it can, it withholds the natural and intellectual rewards of life from those who undertake to criticise its errors. Anything like adequate freedom of thought it does not permit, and this in spite of its own Protestantism in behalf of freedom of conscience. The imputation of intolerence against this age, however, may mistake the amount of progress away from it. Vast improvement

over the past is evident, though examination will show that its evidence is more in the abandonment of the rougher methods applied to scepticism rather than the adoption of a positive interest in freedom of thought. But with all allowances for liberalizing tendencies there is no such opportunity for frank remonstrance against the illusions of the religious mind where it is most needed in regard to questions that are rightly the subject of philosophic debate. It is only the man who has no responsibilities as an institutional teacher that can speak out his mind freely in the public forum. The freedom of academic teaching is perfect on every subject but religion and those questions affecting religious interests.

I do not deny that scepticism has often been quite as provoking as faith. Sceptical intolerance has often been as great as that of which it has complained, while it has also been complicated with the pride of knowledge. But apart from a temperament quite as objectionable as religious bigotry, scepticism is only the obverse side of faith itself. So many things of a detrimental character to men individually and collectively have been accepted without examination or restraint by whole generations that scepticism has been the only hope of redemption. It is only that temper of mind which asks for evidence and examination before accepting beliefs. This men regard as a duty in all subjects except religion and here it is too often regarded as sacrilege. The belief in the existence of God and of immortality has been infused with the intolerance and the passions of political power while cultivating a view of things as sensuous as it was supposed to be spiritual, until there is nothing to bring us to rational conceptions except to question authority. Scepticism, therefore, in restraining these tendencies, like wisdom, has had to seek justification of her children in the appeal to humanity when challenging the truth of fancies that have been insufficiently sustained by evidence and that have not prevented, but have perhaps actually encouraged the display of the worst passions. Poetic imagination, untempered by respect for fact and reality, has too often molded the ideals and conduct of men, and its influence has been directly proportioned to the nature of the objects on which admiration fell. These may be as poisonous in the religious field as in any other. No wonder that Plato banished Homer from his ideal republic where he intended a higher humanity to reign. The wrath of Achilles and the savage cruelties of the Iliad cannot be objects of respect for humane ages or for societies that value refinement and morality. Ulysses in his wandering search for knowledge is a better conception. Nor can any really spiritual nature lose itself in reverence for the purely ma-

terialistic ideas of mediæval Christianity turned into the poetry of Dante and Milton. It is man's sensuousness that curses him with an ideal which only scepticism can destroy. But this savior, like all others, only gets crucifixion for its pains in clearing man of the illusions that haunt the path of salvation. But scepticism performs an important function in the work of progress by tempering the extravagances of "other worldliness," by restraining useless excursions into the unknown, and by preparing the way for a judicious use and economy of the moral earnestness that may remain after doubt has limited the area of certitude in knowledge. It is also often enough accompanied by as much reverence for truth, beauty, and goodness as it has by resignation for the loss of aspirations that are identical with those of faith. But it has none of the temper either of the coward or of the hypocrite, and it finds in moral courage a compensation for restricted ideals. It may even identify itself with the humanities that confer upon religion its whole secular value.

The religious mind too often fails to realize this basis of honesty in the sceptic and by want of proper sympathy drives him into controversy where the morals of both are in danger of contamination and when honest candor might make them allies. But the chief fault of the religious mind is its inelasticity and inadaptability to new facts. It will sit at no shrine but the dead formulas of the past. It is forever trying to put new wine into old bottles. It has allowed its creeds to become fixed and petrified, that is, mere words with the content of what they once meant wholly lost. Religion forgets that its first conceptions had their meaning determined by their relation to the environment in which they were formed and which no longer exists, and consequently that its own victory over ancient philosophy imposed the duty of progress which it has allowed science to assume. Repeating antique formulas is not the way of salvation. It is no better than counting one's beads. Nor will logical jugglery save a creed from decay or give its decrepit form new life. Contact with present reality is its only safe refuge. It cannot remain in the twilight of fable and save its hopes from despair, if it persists in its distrust of science. It needs to learn the lesson of humility and sacrifice which it has always taught, as its experience with Copernican astronomy, Newtonian gravitation, and Darwinian evolution ought to indicate. The confession of error and the change from a useless devotion to the past are as imperative duties as any that religion has urged upon the hardened sinner. But it parades its own infallibility and hides its own sins, while it evades all the merits and magnifies or misrepresents the weakness and

errors of scientific scepticism. It is not wise, however, to threaten the value of its ideals by persistence in creeds that have as little in their defence as they have power to sustain those ideals. Its first duty is to accept the situation which science has created, abandon all controversy with facts, and construct its system of beliefs in accordance with the methods which it has so long antagonized. The religious man is forced to accept inductive processes for all convictions in science and tries to keep *a priori* methods alive for the one subject that is more dubious than all others. The time is past when we require absolute certitude for all our convictions. "Probability is the guide of life," and no harm comes from the perpetual adjustment of our beliefs to everchanging facts. Religion will certainly lose its power for usefulness on any other policy and what moral earnestness it has conserved for the world will languish or expire for the want of association with the conceptions and conclusions of science, so many of which are definitely settled.

It is important to remind the religious man that there is one fact about science that makes its influence highly moral and religious in the true sense of those terms. No man can cultivate the scientific spirit without having a supreme reverence for facts. There is no field of human interest which commands so much sacrifice of prejudice, of preconceptions, of half-formed theories, or of selfish propensities in the matter of convictions. No fact dare be distorted without the assurance that it will return in its integrity to plague the inquirer. Science demands the most absolute sacrifice possible. A man must bow before facts as he would before the Almighty. He cannot demand that the universe yield to his wishes in everything unless he is prepared for the fate of Midas. His spirit must be that of the pious devotee who earnestly prays: "Thy will be done." There is no surrender of the will so absolute as that required by science. There is no ritual in the worship that it commands, but, like the kingdom of God, its sanctuary is in the heart and will, having no outward forms that are either necessary or useful for the incitement of obedience and reverence. Science has but one mood by which to secure salvation and that is willing acceptance of facts regardless of theories and emotions. The Christian who demands of himself and others the strictest submission to the will of God, the sacrifice that asks no favor and pines at no suffering, only expects of man what the scientist must practice whether he makes it an ideal or not, if he expects to be a scientist at all, or to free himself from the travel of despair and to be content with less than he might hope. The religious man may often, or perhaps may nearly

always, fail to live up to his ideals, but the scientific man never. The latter is ever before an unpropitiable power and he knows it. He learns to bow to its course and to adjust his ideals to the limitations under which he works. He may not feel the reverence that is due to personality, but he fulfils the first condition for understanding a personality if he ever found a belief in it justifiable, and he realizes in his moral attitude toward things all that any personality can require of him as long as it conceals its own clear existence from human knowledge. The truly scientific man will allow no sentimental considerations to prejudge his estimate of nature, but accepts it as a privilege and a duty to live strictly within the boundaries of assured fact, and where he can venture to hope for more than this, he does so with the resignation of a Stoic. The letter of Professor Huxley to Charles Kingsley is an illustration of the scientific man in his best estate and is a lesson to the religious devotee that should not be forgotten.[1]

[1] The whole of this letter is worth quoting as the best example that I know of the religious spirit in the scientist. The son says of it: "His reply to a long letter of sympathy in which Charles Kingsley set forth the grounds of his own philosophy as to the ends of life and the hope of immortality, affords insight into the very depths of his nature. It is a rare outburst at a moment of intense feeling, in which, more completely than in almost any other writing of his, intellectual clearness and moral fire are to be seen uniting in a veritable passion for truth."

"My Dear Kingsley — I cannot sufficiently thank you, both on my wife's account and my own, for your long and frank letter, and for all the hearty sympathy which it exhibits — and Mrs. Kingsley will, I hope, believe that we are no less sensible of her kind thought of us. To myself your letter was specially valuable, as it touched upon what I thought even more than upon what I said in my letter to you. My convictions, positive and negative, on all the matters of which you speak, are of long and slow growth and are firmly rooted. But the great blow which fell upon me seemed to stir them to their foundation, and had I lived a couple of centuries earlier I could have fancied a devil scoffing at me and them — and asking me what profit it was to have stripped myself of the hopes and consolations of the mass of mankind? To which my only reply was and is — Oh the devil! truth is better than much profit. I have searched over the grounds of my belief, and if wife and child and name and fame were all to be lost to me one after the other as the penalty, still I would not lie.

"And now I feel that it is due to you to speak as frankly as you have done to me. An old and worthy friend of mine tried some three or four years ago to bring us together — because, as he said, you were the only man who would do me any good. Your letter leads me to think he was right, though not perhaps in the sense he attached to his own words.

"To begin with the great doctrine you discuss. I neither deny nor affirm the immortality of man. I see no reason for believing in it, but, on the other hand, I have no means of disproving it.

Faust's monologue exhibits in clear light the tendencies of the scientific mind when it has to free itself from the shackles which traditional conceptions of religion have put upon it. Faust had come fresh

"Pray understand that I have no *a priori* objections to the doctrine. No man who has to deal daily and hourly with nature can trouble himself about *a priori* difficulties. Give me such evidence as would justify me in believing anything else, and I will believe that. Why should I not? It is not half so wonderful as the conservation of force, or the indestructibility of matter. Who-so clearly appreciates all that is implied in the falling of a stone can have no difficulty about any doctrine simply on account of its marvellousness. But the longer I live the more obvious it is to me that the most sacred act of a man's life is to say and to feel, 'I believe such and such to be true.' All the greatest rewards and all the heaviest penalties of existence cling about that act. The universe is one and the same throughout; and if the condition of my success in unravelling some little difficulty of anatomy or physiology is that I shall rigorously refuse to put faith in that which does not rest on sufficient evidence. I can not believe that the great mysteries of existence will be laid open to me on other terms. It is no use to talk to me of analogies and probabilities. I know what I mean when I say I believe in the law of inverse squares, and I will not risk my life and my hopes on weaker convictions. I dare not if I would.

"Measured by this standard, what becomes of the doctrine of immortality? You rest in your strong conviction of your personal existence, and in the instinct of the persistence of that existence which is so strong in you as in most men.

"To me this is as nothing. That my personality is the surest thing I know — may be true. But the attempt to conceive what it is leads me into mere verbal subtleties. I have champed up all that chaff about the ego and the non-ego, about noumena and phenomena, and all the rest of it, too often not to know that in attempting even to think of these questions, the human intellect flounders at once out of its depth.

"It must be twenty years since, a boy, I read Hamilton's essay on the unconditioned, and from that time to this ontological speculation has been a folly to me. When Mansel took up Hamilton's argument on the side of orthodoxy (?) I said he reminded me of nothing so much as the man who was sawing off the sign on which he is sitting, in Hogarth's picture. But this by the way.

"I cannot conceive of my personality as apart from the phenomena of my life. When I try to form such a conception I discover that, as Coleridge would have said, I only hypostatize a word, and it alters nothing if, with Fichte, I suppose the universe to be nothing but a manifestation of my personality. I am neither more nor less than I was before.

"Nor does the infinite difference between myself and the animals alter the case. I do not know whether the animals persist after they disappear or not. I do not even know whether the infinite difference between us and them may not be compensated by *their* persistence and *my* cessation after apparent death, just as the humble bulb of an annual lives, while the glorious flowers it has put forth die away.

"Surely it must be plain that an ingenious man could speculate without end on both sides, and find analogies for all his dreams. Nor does it help me to tell

from scholastic training into direct contact with nature and was endowed with a capacity for seeing its poetic side. The flush of excitement and enthusiasm which the change produced made the reaction

me that the aspirations of mankind — that my own highest aspirations even — lead me towards the doctrine of immortality. I doubt the fact, to begin with, but if it be so even, what is this but in grand words asking me to believe a thing because I like it?

"Science has taught me the opposite lesson. She warns me to be careful how I adopt a view which jumps with my preconceptions, and to require stronger evidence for such belief than for one to which I was previously hostile.

"My business is to teach my aspirations to conform themselves to fact, not to try and make facts harmonize with my aspirations.

"Science seems to me to teach in the highest and strongest manner the great truth which is embodied in the Christian conception of entire surrender to the will of God. Sit down before fact as a little child, be prepared to give up every preconceived notion, follow humbly wherever and to whatever abysses nature leads, or you shall learn nothing. I have only begun to learn content and peace of mind since I have resolved at all risks to do this.

"There are, however, other arguments commonly brought forward in favor of the immortality of man, which are to my mind not only delusive, but mischievous. The one is the notion that the moral government of the world is imperfect without a system of future rewards and punishments. The other is that such a system is indispensable to practical morality. I believe that both these dogmas are very mischievous lies.

"With respect to the first, I am no optimist. But I have the firmest belief that the Divine Government (if we may use such a phrase to express the sum of the 'customs of matter') is wholly just. The more I know intimately of the lives of other men (to say nothing of my own), the more obvious it is to me that the wicked does not flourish, nor is the righteous punished. But for this to be clear we must bear in mind what almost all forget, that the rewards of life are contingent upon obedience to the *whole* law — physical as well as moral — and that moral obedience will not atone for physical sin, or *vice versa*.

"The ledger of the Almighty is strictly kept, and every one of us has the balance of his operations paid over to him at the end of every minute of his existence.

"Life cannot exist without a certain conformity to the surrounding universe — that conformity involves a certain amount of happiness in excess of pain. In short as we live we are paid for living.

"And it is to be recollected in view of the apparent discrepancy between men's acts and their rewards that Nature is juster than we. She takes into account what a man brings with him into the world, which human justice cannot do. If I, born a bloodthirsty and savage brute, inheriting these qualities from others, kill you, my fellow-men will very justly hang me, but I shall not be visited with the horrible remorse which would be my real punishment if, my nature being higher, I had done the same thing.

"The absolute justice of the system of things is as clear as any scientific fact. The gravitation of sin to sorrow is as certain as that of the earth to the sun, and

tremendous and transferred all the emotions that had properly or traditionally characterized religious worship over to physical nature. It is unfortunate, however, that the opposition between science and re-

more so — for experimental proof of the fact is within reach of us all — nay, is before us all in our own lives, if we had but the eyes to see it.

"Not only, then, do I disbelieve in the need for compensation, but I believe that the seeking for rewards and punishments out of this life leads men to a ruinous ignorance of the fact that their inevitable rewards and punishments are here.

"If the expectation of hell hereafter can keep me from evil-doing, surely *a fortiori* the certainty of hell now will do so? If a man could be firmly impressed with the belief that stealing damaged him as much as swallowing arsenic would do (and it does), would not the dissuasive force of that belief be greater than that of any based on mere future expectation? And this leads me to my other point.

"As I stood behind the coffin of my little son the other day, with my mind bent on anything but disputation, the officiating minister read, as a part of his duty, the words, 'If the dead rise not again, let us eat and drink, for to-morrow we die.' I cannot tell you how inexpressibly they shocked me. Paul had neither wife nor child, or he must have known that his alternative involved a blasphemy against all that was best and noblest in human nature. I could have laughed with scorn. What! because I am face to face with irreparable loss, because I have given back to the source from whence it came, the cause of a great happiness, still retaining through all my life the blessings that have sprung and will spring from that cause, I am to renounce my manhood, and, howling, grove in bestiality? Why, the very apes know better, and if you shoot their young, the poor brutes grieve their grief out and do not immediately seek distraction in a gorge.

"Kicked into the world a boy, without guide or training, or with worse than none, I confess to my shame that few men have drunk deeper of all kinds of sin than I. Happily, my course was arrested in time — before I had earned absolute destruction — and for long years I have been slowly and painfully climbing, with many a fall, toward better things. And when I look back, what do I find to have been the agents of my redemption? The hope of immortality or of future reward? I can honestly say that for these fourteen years such a consideration has not entered my head. No, I can tell you exactly what has been at work. *Sartor Resartus* led me to know that a deep sense of religion was compatible with an entire absence of theology. Secondly, science and her methods gave me a resting place independent of authority and tradition. Thirdly, love opened up to me a view of the sanctity of human nature, and impressed me with a deep sense of responsibility.

"If at this moment I am not a worn out, debauched, useless carcass of a man, if it has been or will be my fate to advance the cause of science, if I feel that I have a shadow of a claim on the love of those about me, if in the supreme moment when I looked down into my boy's grave my sorrow was full of submission and without bitterness, it is because these agencies have worked upon me, and not because I have ever cared whether my poor personality shall remain distinct forever from the All from whence it came and whither it goes.

ligion should give any room for misunderstanding as to the law of things or as to the source of reverential emotions. But religion has sought to exalt the purity of its own emotional content by confining it to some spiritual world whose whole meaning was obtained in contrast with the material. Yet at the same time that it defined its ideals by the exclusion of nature, it still considered the latter as a product of the same power that expressed its divine character in the spiritual. It must therefore not blame the scientific man if the latter, distrustful of

"And thus, my dear Kingsley, you will understand what my position is. I may be quite wrong, and in that case I know I shall have to pay the penalty for being wrong. But I can only say with Luther, 'Got helfe mir, ich kann nichts anders.'

"I know right well that 99 out of 100 of my fellows would call me atheist, infidel, and all the other usual hard names. As our laws stand, if the lowest thief steals my coat, my evidence (my opinions being known) would not be received against him. [Said in 1860. The law was reformed in 1869.]

"But I cannot help it. One thing people shall not call me with justice and that is — a liar. As you say of yourself, I too feel that I lack courage: but if ever the occasion arises when I am bound to speak, I will not shame my boy.

"I have spoken more openly and distinctly to you than I ever have to any human being except my wife.

"If you can show me that I err in premises or conclusion, I am ready to give up these as I would any other theories. But at any rate you will do me the justice to believe that I have not reached my conclusions without care befitting the momentous nature of the problems involved.

"And I write the more readily to you, because it is clear to me that if that great and powerful instrument for good or evil, the Church of England, is to be saved from being shivered into fragments by the advancing tide of science — an event I should be very sorry to witness, but which will infallibly occur if men like Samuel of Oxford are to have the guidance of her destinies — it must be by the efforts of men who, like yourself, see your way to the combination of the practice of the Church with the spirit of science. Understand that all the younger men of science whom I know intimately are *essentially* of my way of thinking. (I know not a scoffer or an irreligious or an immoral man among them, but they all regard orthodoxy as you do Brahmanism.) Understand that this new school of the prophets is the only one that can work miracles, the only one that can constantly appeal to nature for evidence that it is right, and you will comprehend that it is of no use to try to barricade us with shovel hats and aprons, or to talk about our doctrines being 'shocking.'

"I don't profess to understand the logic of yourself, Maurice, and the rest of your school, but I have always said I would swear by your truthfulness and sincerity, and that good must come of your efforts. The more plain this was to me, however, the more obvious the necessity to let you see where the men of science are driving, and it has often been in my mind to write to you before.

"If I have spoken too plainly anywhere, or too abruptly, pardon me, and do the like to me. My wife thanks you very much for your sermons.

"Ever yours faithfully,

"T. H. HUXLEY."

speculations of an *a priori* sort and without adequate evidence in their support, finds his God in the system which *he* admires, but which shows none of the ideal that is so much the object of the religious man's reverence.

There are two things which the religious mind should learn. The first is that the language which it employs in the description of its system can have either of two meanings: (1) it may be abstract in which its import is neither interesting nor intelligible to those who think in concrete images of sensible experience; (2) it may be interpreted and must be interpreted by mankind in general, in the terms of present experience and not the past. It is the misfortune of religious doctrines that they carry their formulas from age to age while experience changes, and this experience is the only thing by which the meaning of formulas can be understood. Consequently, there is a perpetual clash between the conservative and the progressive spirit of men and times, between the tendencies that form their ideals in the past and those that form them in the present. The religious man insists upon being poetic. He can hardly be anything else. He can only imagine the past and the future, and his religion is based upon these. Nothing but the ideal survives the past and nothing but the ideal will pass into the future. The real of the one is buried forever and the real of the other can never be represented. But the scientific man, the lover of facts must get his ideal and the source of emotional reverence from the present, and fortunate it will be, after the religious mind has discredited nature, if the scientist can be stirred by any beauty in it at all. But when he does feel emotional interest in it, the system which he studies is a mixed one. The real and the ideal are combined in miscellaneous confusion, so that he can never contemplate the spectacle of nature without seeing that, for the moment that it passes, the ideal is touched by illusion. What survives from the past and what is expected in the future are idealized by poetry and religion, and hence they enjoy a liberty for the imagination which science cannot indulge with impunity. Science is responsible for truth, whether the ideals of poetry and religion are realized or not. Its kingdom is that of fact and its temper must be austere and stoical. But in all this the man may rise above his science just as the devotee may fall below his ideal. It will all depend on the religious man to say, after so many scientific defeats against tradition, whether the scientist can make any overtures for peace. The vicissitudes of intellectual progress have dispossessed the reign of faith in all but those who have not the courage to defy the temptations of despair and in those who never clearly realize the real source of hope

and aspiration. Those who have to measure the character of nature or Providence by the present facts of experience, and who have none of the moral weakness of the sentimental must be pardoned a temper of courage and defiance as a condition of restraining intolerance and the indulgence of religious emotions that are injudicious in the choice of means for a justification. If left alone to express their devotions and enthusiasms the scientific men will always come near to piety and reverence. They have no quarrel with what cannot be. They ask no favor but to know and obey.

Wenn der uralte,	When the ancient,
Heilige Vater	Heavenly father
Mit gelassener Hand	With tranquil hand
Aus rollenden Wolken	From rolling clouds
Segnende Blitze	Blessings in thunderbolts
Ueber die Erde sät,	Sends over the earth,
Küss ich den letzten	I kiss the last hem
Saum seines Kleides,	Of his garment,
Kindliche Schauer	Childlike in awe
Treu in der Brust.	Faithful in spirit.

That is a temper which the religious man cannot discourage without doing injury to the best that is in his own ideals, and it is remarkable that the sentiment should be expressed by a man like Goethe.

Human nature has always sought the divine in the past and the future and could see no good in the present or no poetry in the real. It has looked with envy on an imaginary past and insists upon looking with passionate hope on an equally imaginary future for its ideals, and refuses to be consoled or satisfied with work and conquest in an order which it cannot regard as beneficent. But science has come to disturb its fancies and to teach a stoical attitude where poetic ecstasy cannot be felt or the worship of art and nature indulged with indifference to the golden illusions about the past and the future. It refuses to regard the ages that are gone and the ages that are coming as any better essentially than that which we inherit. Nature is uniform and impartial and does not alter its course or behavior. The sun and the moon do not stop in the valley of Ajalon. Whatever of mystery there is in the course of the world is the mystery of the present and not especially of the past or the future. There is either no age of miracles or it is ever present. The glory and the shadows of the world are the same for all periods of time. Whatever its changes it represents the same eternal coloring. Whatever inspiration comes from its beauty and grandeur and whatever intelligible aspect it shows, they are reflected from the present as much as from any real or imaginary past.

Die Sonne tönt nach alter Weise
In Brüdersphären Wettgesang,
Und ihre vorgeschrieb'ne Reise
Vollendet sie mit Donnergang.
Ihr Anblick gibt den Engeln Stärke
Wenn keiner sie ergründen mag;
Die unbegreiflich hohen Werke
Sind herrlich wie am ersten Tag.

The sun still sings his ancient song
In rival music with the stars,
And in his predetermined path
He ends his course in thundertones,
His visage gives the angels strength
When none can comprehend his ways;
The unconceived majestic works
Are crowned as on the first of days.

It will be the same with the future. Science will no more indulge imaginary hopes about the future than it will permit imaginary theories about the past. Facts, with what explains them and what they may presage, are the only revelation which it will tolerate. Patience, courage, and fortitude are the only virtues that it recognizes in its attitude toward the cosmos, though in doing this it often forgets the religious passion which worships even when it loses hope, its mind still lingering on the fond possibility that its stoicism and what it has to reverence and respect in the present order, may yet have a fruition where virtue does not have to seek a refuge in despair or be swallowed up by the insatiable maw of fate. But if it succeeds in coloring nature with any hue of beauty or goodness, or excites any admiration for external art and order, or counsels any moral attitude toward the cosmic process, it must either join its worship to pride and defiance without either hope or despair, or let its resignation pay homage to an ideal which it cannot prove while its emotional inspiration and enthusiasm shall mingle the aspirations of a Christian reverence and hope with the pathos of a Stoic life.

Alles hinzugeben
Ist der Liebe Brauch;
Nimm denn hin mein leben,
Und mein Sterben auch!

All to thee to yield
Is, God, the way of love;
So take, then, hence my life
And to my death for thee!

Aller meiner Lieder
Sanften Schmeichellaut,
Die ein Eden wieder
Sich aus Schutt erbaut;

All my gentle songs
Of holy worship here,
That build their Eden joys
From only heaps of earth;

Alle Lichtgedanken,
Die an Glück und Leid
Kühn sich aufwärts ranken
In die Ewigkeit;

All the splendid thoughts
That gleam in joy and pain,
And boldly upward look
Into Eternity;

All mein stilles Sehnen,
Innig dir vertraut,
Das in sel'gen Thränen
Auf dich niederthaut!

All my silent hopes
And deeper faith in thee,
That in my happy tears
As dew-drops fall on thee;

Nimm, dass nichts dir fehle,	Take these that nothing fail,
Wenn die stunde ruft,	And when the hour calls,
Meine ganze Seele	My soul and all it is
Hin als Opferduft.	As incense fragrance thine.

But in this temper science will pass into religion and religion will submit to the sacrifice of its personal and selfish ideals until knowledge, extending "beyond the utmost bounds of human thought," shall show us that the future is a link with the present as the present is with the past. But whatever beauty or goodness the future may promise they must be found either latent or revealed in our present experience and must not be wholly unrelated or disconnected with an existence which is decried, on the one hand, and conceived as the end of all things, on the other. Evolution, with its persistence of energy, conceives the present as a moving point between the past and the future and ever developing progress or communicating the ideal and permanent from age to age, though for the moment that it passes it is marked by a shadow. But at any point in which the scientific and the religious temper meet the passing moment will be fraught with promise, and though it may not yield the hopes which we love to indulge, it will not wholly disappoint those who, struggling to realize the ideal, are patient to bear the ills of the passing moment, which, while leaving the darkness in its wake, carries into the next the visible and prophetic light of progress. If evolution be the medium for transmitting the achievements of the present intact into the future, whatever sombre hues it may have for those impatient minds who watch in pain its remorseless course, it will still shelter for preservation more than it allows to perish, and a defensible hope may hover over a limitless horizon which an older view had pictured as a precipice leading into a bottomless gulf. We are not accustomed to think of evolution as the bearer of any inspiriting message, but with this conception of its function to preserve achievement and to protect progress it assumes the character of a gospel that may cheer the moment which the gloomy fears of the past had saddened, and the science which had come to destroy our illusions follows its victory with the promise of life instead of death. It may not be apparent at first in this conception,

> Yet all experience is an arch wherethrough
> Gleams that untravell'd world whose margin fades
> Forever and forever as we move.

It would be strange if the vigilance of the scientific spirit should bring again what its stoic morality told us must be sacrificed. The fabled Phœnix may rise again from its own ashes. It did so once in the

history of the world when Christian spiritualism arose from Greek materialism, and right in the triumphs of modern scientific materialism the latter's method may be the Nemesis of its scepticism. In that moment it will reanimate ethical and religious aspiration while it reconciles the passions of truth and hope. Greek and Christian ideals, the one an enthusiasm for art with a fear of death and the other an ascetic moral temper bathed in the prospect of eternal life, may be fused in a secular morality and a religious faith, a consummation which neither Greek nor Christian could fully realize. "The fear of age and death," says Dickinson, "is the shadow of the love of life; and on no people has it fallen with more horror than on the Greeks. The tenderest of their songs of love close with a sob; and it is an autumn wind that rustles in their bowers of spring." The Christian transferred the charm and lustre of the present to the future, sought to redeem his earthly life by the belief in immortality and the brotherhood of man, forgot the scientific credentials for his hopes and the ethics of his social life, and became a prey to the triumph of an economic and materialistic order, until, between the contempt for fact and the loss of his faith, he must come to science for the resuscitation of the ideal and the illumination of the real. It is possible that this may discover the end toward which his history moves.

On the other hand, there is in the scientific man's duties and occupations a condition of things that tends to suppress the sympathetic emotions. The very constraint of facts and the necessity for perpetual watchfulness against the influence of hopes and wishes, the suspense of judgment in the estimation of theories and the temptation to confine the vision to what is immediately before him, tend to keep in the background all the humanizing ideals and emotions that have done more than either science or philosophy to civilize the race, and have given science and philosophy themselves half the power which they exercise over the human mind. The scientific man needs to learn that the narrowing of his enthusiasm to the mere discovery of truth may blind his vision to beauty and goodness, or at least may check the impulse to realize more than the cosmic order which he finds and does not produce. Man's character is as much concerned in making as in observing facts. The contemplative life alone is enervating, and with all the submission to the cosmic order, there is in scientific patience and resignation a condition of mind that escapes moral latitudinarianism only by the presence of the complementary virtues giving vigor and passion to the will. There is as much danger of the unhumanizing mental qualities in science as there is of illusions in religion, and

the man of fact should learn this as necessary to make his work as useful as it deserves to be. The division of labor which has seized every department of human activity too often shuts the scientific man out from those influences which tend to make him concessive to a power on which he depends for his existence. His living is assured by arrangements that permit exclusive occupation with his investigations. He is relieved from that struggle for existence against nature directly which does so much to create the sense of dependence that calls out religious hope and fear. Agricultural communities have always been religious: urban communities are less so. In the one, the direct contact with nature, whether it be regarded as impersonal or as the personal dispensation of a will as fixed as anything impersonal could be, tends to enforce the sense of dependence on superior and mysterious power. In the other, this dependence is remote and indirect, the community being commercial and the relations more or less social directly or indirectly. The one is a struggle of man with nature and the other a struggle of man with man in his economic relations. Now the scientific man, with his living provided for him, feels little of this struggle in either the natural or the economic field. Such as he feels is that between himself and those who have power to limit him in the freedom of his thought and speech. In contact with nature only as something to study and subject to his own will, and with man as a personal being whose whims and power he must consider without respecting, he will feel little religious dependence on the one and must learn in relation to the other the habits of prudence, sycophancy, politic manners, intellectual and moral reservation, obsequiousness, and deference to persecuting power and unwilling concession to minds and wills that invoke no respect while their power is feared, and all in a situation that obligates him to think and to tell the truth as he sees it. Dependence on nature, where effort can do nothing to make it obedient to our needs, invokes some of the finest as well as some of the worst of our religious habits of mind and will, but the courage that conquers it and diverts its blind processes into our own uses does not elicit the respect or reverence that is stimulated by dependence on its grace. The struggle with nature will be humanizing only when it represents a balance between courage and faith, the one to prevent superstitious subservience and the other to escape the despair of minds that feel the impulse of high duties and no hope of realizing their ideals. But the scientific man, if he cannot have this courage and faith, and if he does not share with his fellows the conditions that may press his will into the general service, he must lose the social function of his work. But he will

never understand the religious temper until he is placed in that fierce struggle with nature to earn his living and to sustain an ideal which the physical world apparently regards with indifference.

> Wer nie sein Brod mit Thränen ass,
> Wer nie die kummervollen Nächte
> Auf seinem Bette weinend sass,
> Der kennt euch nicht, ihr himmlischen Mächte.

"He who has never eaten his bread in tears or passed his anxious nights in weeping will never feel the sense of the divine." But place the scientific man where he both feels his proper dependence upon the struggle for existence and can enjoy the freedom that is due his position as a missionary of truth and he too will be the first to express the humanizing and religious tendencies that are adaptable to the cosmic order and to the wants of his race. The religious consciousness can be revived in both its social functions and its larger hopes. "Science," says John Morley, who will not be accused of any orthodox religious prejudices, "when she has accomplished all her triumphs in her own order, will still have to go back, when the time comes, to assist in building up a new creed by which men can live. The builders will have to seek material in the purified and sublimated ideas, of which the confessions and rites of the Christian churches have been the grosser expression. Just as what was once the new dispensation was preached *a Judæis ad Judæos apud Judæos*, so must the new, that is to be, find a Christian teacher and Christian hearers. It can hardly be other than an expansion, a development, a readaptation, of all the moral and spiritual truth that lay hidden under the worn out forms. It must be such a harmonizing of the truth with our intellectual conceptions as shall fit it to be an active guide to conduct. In a world '*where men sit and hear each other groan, where but to think is to be full of sorrow*,' it is hard to imagine a time when we shall be indifferent to that sovereign legend of Pity. We have to incorporate it in some wider gospel of Justice and Progress."

The task imposed in this service is a large one and the scientific mind, whose duty it is to perform it, is exposed to the blight of tendencies of which it is not wholly conscious. Two things tend to dehumanize the scientist: the concentration of his life and thought on the iron order of nature and the measure of his exemption from competition with both nature and his fellows. With all his reverence for fact and with all his submission to laws that he can neither make nor unmake, constant isolation from the sense of dependence, and his consciousness

of power to penetrate the secrets of nature and to mold its forces to his own will encourage pride and self-confidence, close the springs of humanity, as he deals only with physical reality, induce him to form his ideals on the type of brute force and to imitate the superficial characteristics of an order from which he has banished all the higher sentiments of art, of poetry, and of religion. I do not mean that we need turn our backs on nature and seek again the ages of faith for salvation from the brutalities of that struggle for existence which seems the only norm of conduct that nature gives us for a gospel. For in spite of the conception which the orthodox middle ages maintained, or appeared to maintain, in regard to nature, and in spite of its boasted charity and love of man, its works were governed by the hope of personal reward and the springs of the good were not humane in any respect. Besides, this particular period and human character represent such moral defects that one must regard nature as very long-suffering to preserve the species at all. But along with the scientific spirit has gone the consciousness that nature will not help us unless we help ourselves and the consciousness that we cannot depend upon the future to right the wrongs of the present in any artificial manner, a spirit that places the burden of responsibility for moral achievement upon courage and work, and so discredits the indolence of hope without work, while it does not lessen the feeling that man is superior to the physical order, though it brings him to see that his salvation must be won *from* it instead of *against* it. Pity and sympathy can flourish more in a world of struggle than in one of grace. Yet the scientific spirit may easily lose the guerdon that the situation offers for the prize. The possession of power to move men depends as much upon showing that nature is on the side of human ideals and morality as upon the recognition of an inexorable order. But in the scientific man, the sense of the priority of physical law to what is to be won by moral effort and the dethronement of emotion from its natural, and perhaps dangerous power in life, leaves him where he has to face the ugly spectre of nature's apparent indifference to ideals which cannot be fully realized except *in* the physical order, and thus to obey laws that his own nature may not respect as highly as it would personality, could he feel convinced of its presence. The apparent heartlessness of what he studies and the remorseless savagery of the models that it offers to imitative action, without any belief in a higher purpose than the actual order that he contemplates, require strong inner principles to resist the temptation to follow "nature" instead of the humanity that endeavors to rise above it. What science then will do for moral ideals

depends more on the man than upon his work. Evolution has to produce the instincts that will counteract the narrowing influence of absorption in physical investigations and distribute the honors of progress equally between what is consciously and what is unconsciously accomplished. It is the duty of science to add to what can be unconsciously gained from the world and as a part of this system is that immense mass of ideas and feelings that are embodied in poetry and hope, it cannot afford to neglect them any more than it does the harder facts of matter and physical law. If we quarrel with nature for the lack of the humanities in her course, the obligation is all the stronger to respect enough the sense of superiority we feel to extort them from the reluctant hands of what we claim to master for our ends. It is only when we are ignorant of the ideal that we are excusable for imitating the "nature" that the moralist despises. Here is the place and function of idealism. It is to stimulate and to realize what the conscience indicates is above "nature" and not to wait for its spontaneous occurrence. It is not a revelation that we want, but achievement. But the scientific man is in danger of abandoning an ideal because he does not find it ready made and he may sacrifice its inspiration and influence for mere grubbing in the mephitic mines of matter, sensible only of the colder stoic passion of courage to endure what he cannot respect or admire. Poetry and religion, though they have too often been led to look for peace outside the scientific world, have a function there for those minds that can see in it the chance for moral development, and it requires only that they accommodate their vision to the real and idealize that, if they hope to rob scientific enthusiasm of its sting. But if science take their place for humanizing man it must exhibit sufficient moral interest and power to inspire high ideals, or at least not to stifle them. In its mastery over matter, however, it is exposed to all the temptations of the cynic and may cool the ardor of youth in a passionless search for facts when wonder and beauty have lost their power But let these retain their inspiration and the opportunity is open for the union of the scientific and the religious spirit, provided, however, that the latter may concede to science the right to form our creeds. Religion, as a name for the serious view of life, may furnish the emotional attitude toward reality and the motive power for action, but it must leave to science the determination of what is true.

The objection to such a reconciliation between science and religion would be that it involves the complete surrender of the latter to the former and that it leaves nothing to religion which had characterized its very essence. Its fundamental conceptions have been the existence

of God, the immortality of the soul, at least in Christianity, and the various beliefs that represent a cosmic dispensation ever in the personal interests of man present and future. It will be said that the reconciliation proposed offers no rational substitute for these. Such an objection, however, is partly true and partly false. I have not proposed any dogmatic doctrines against scepticism and scientific method, but I have endeavored to preserve what is important in both movements. It is impossible to read the history of the conflict between the two tendencies without recognizing frankly the extent to which religion or theology has been humiliatingly defeated in its claims, and this makes it necessary to frankly admit that, unless it can show functions unattackable by cosmic science, it must go the way of all the ancient religions. The fundamental difficulty with much of what religion has taught has been the impossibility of testing its assertions in the same way that any alleged fact could be tested. A scientific and critical age must try every assertion by experience and if it is interpretable in these terms it is credible; otherwise it is not. Greco-Roman mythology was the earliest form of religion for those people, and it has wholly disappeared, except as a reservoir of literary reference, and for the reasons that it was too anthropomorphic to be tolerated by the spirit of science and that it had no ethical and social motives and connections adequate to a properly humanizing mission. It was perhaps the most extensive and most explicit system of conceptions that the human mind ever formed impersonating and symbolizing in anthropomorphic types the operations of natural forces. The early Greeks saw and felt nature in its relation to man, not men in relation to each other. Hence their religion was naturalistic and obtained no social content. Hence their mythological religion disappeared like a morning mist before scientific and philosophic criticism, though there remained in Platonism and Neo-Platonism a consuming desire to see the cosmic order in the light of a system in some way identified with the interests of man. But the general reaction was into a triumphant or despondent materialism. When Christianity came to reconstruct the religious system which it made more or less anthropomorphic, it did so more consistently with the spirit of science, as it admitted that intelligence was secondarily connected with physical events. It conceded an enormous field to the operations of "natural law" after the initial act of creation had been effected and so was less anthropomorphic than mythology. But it also had the good fortune to identify itself with philanthropic and ethical impulses which were as much its primary characteristic as any creed about the tran-

scendental world. It was only the decline of the ethical motive and the extension of the philosophic that brought it into conflict with cosmic problems of more enlightened ages. But even in this development it was the moral and social impulses in the system that did as much to preserve it as its philosophic creed, and perhaps more. In this respect it completely contrasts with Greco-Roman religions. These, as I have remarked above, never had the social and moral content that infused Christianity with a passion for humanity, even though this was tinctured with a primary interest in a future life beyond the grave. Greco-Roman religions were a little more than superstitions about nature. The functions of ethics were left to philosophy which was sharply distinguished from religion by its opposition to anthropomorphism. But Christianity more or less identified itself with philosophy in the course of its development and enforced something of a compromise with anthropomorphism while it clung to its ethical impulses and to the hope of a future life. Its vitality depended upon this fact. But in the course of time it allowed its science to atrophy, or to become a lifeless system of dogmatism in conflict with new discoveries and so endangered its ethics by their association with decadent cosmic beliefs. Its continued usefulness will depend upon the conversion of its energy and enthusiasm into the ethical problems of civilization and the adjustment of its creed to the methods and results of science. It may as well face this condition and make its peace with science frankly and without reservation. It can do this with good grace, if science should succeed in giving a future life of the soul the same status that evolution and gravitation have. But its priesthood must have the courage to lead and not to follow in this movement. A new Protestantism is needed which will insist that religion needs as much reforming as science needs the leaven of moral impulse. One main difficulty is that there is too little freedom for those who would correct the errors of the religious mind by plain speaking. The priesthood that is able and willing to reform it, are not permitted to do it in the only way in which reform is possible and the same influences keep the institutional scientific man silent, while the most intellectual men who would like to do man a service as his ethical and religious teacher are not conceded the requisite freedom of thought and speech and must resort to the professions for a career. But the time is past in which we can insist that all the concessions shall be made by science. It has vindicated itself by its actual success as a guide to human conviction, and it is possible that it may, in the near future, supply all the credibility that the immortality of the soul can have, and this doctrine was

and is the foundation of Christianity, even in its ethical ideas. Its hope lies in alliance with science and not in antagonism with it. In many of its leaders it already shows this disposition, but it requires to be conscious, intelligent and unreserved. It must abandon all persecuting spirit and have as much faith in science as it has tried to cultivate hate against it. The virtues which it inculcates in men toward each other with its professions of faith it must adopt toward the scientific world, and it will find itself met half way and receive as much strength from voluntary humility as it does from the alliance with science.

The comparative functions of reason and faith come under consideration in this connection. It is but another way of stating the relation between science and religion. The historical controversy under these terms makes it necessary to give it at least a passing notice, and it represents the form of conception in which many minds understand the problem. Philosophy and science have stood for the supremacy of reason and religion for that of faith. There have been differences between philosophy and science, but they were not radical. Their general spirit is the same and to some extent their territory. Both are concerned with the cosmic order, whether material or spiritual, and both have aimed to correct mythological and anthropomorphic conceptions of the world. Religion, whether consciously or unconsciously, has conserved the latter, and whenever it has been baffled by reason to support tradition and authority, it has appealed to faith as some agency for validating doctrines which are otherwise incredible.

Both the strength and the weakness of the religious position is shown in this appeal to "faith." The term is so equivocal that it may comprise either an important truth or the most fatal of all errors. I may summarize its various meanings. (1) Intuition as prior to and the basis of all ratiocinative or reasoned truth; (2) inductive as opposed to deductive or demonstrative conclusion; (3) acceptance of truth on authority and not on personal insight; (4) fidelity of will toward a person or principle of conduct. There are corresponding equivocations in the use of the term "reason," some of them actually coinciding with some of those for "faith." (1) Personal insight as opposed to authority. Intuitive as well as ratiocinative processes; (2) ratiocinative as distinct from intuitive processes; (3) deductive and demonstrative ratiocination as distinct from both intuitive and inductive action; (4) critical investigation of present facts as opposed to the blind acceptance of tradition and authority.

It will be apparent to any reader what conflicts may arise from these various conceptions, not only between "reason" and "faith,"

but also between the different meanings of each term. I need not go into any elaborate examination of the claims of any particular application of either term, as each and all would be subject to the qualification which the elimination of equivocation would effect. With the proper definitions and limitations a function for both "reason" and "faith" is perfectly possible, and equally possible would be their opposition according to definition and application. Thus if "reason" be ratiocinative and "faith" intuitive, there is no necessary conflict because process and object are supposed to be different. If "reason" be deductive and "faith" inductive there is no necessary conflict, as they would differ only in the modality of their judgments. But in the course of intellectual development "reason" has come generally to stand for both a method of obtaining a conviction and a certitude of mind which is contrasted with "faith," while this "faith" has fluctuated between a mental condition which supplied the basis for "reason" and some sort of conviction which was not necessarily a basis for reasoned truth of any kind, but a sort of mixture of chance and induction, or acceptance of what could not be "proved," though it may have some slight probability in its favor as against the opposite view. All these, however, represent the matter as a process of arriving at convictions, whether fixed or suspended, absolute or tentative, and do not concern the subject matter involved. But in the controversy between science and religion the primary question has not been the process of obtaining knowledge but the objects of it, the propositions of which assent is affirmed or denied. The conflict has been about the subject matter, not the mental process. The shifting of the controversy over to the question of process only evaded the real dispute, as "faith" has practically stood for the insistence for certain dogmas against the invulnerable conclusions of science, and gained illegitimate support by the effort to apply the term to a process which can be opposed to "reason" only as ratiocinative certitude is distinguished from ratiocinative probability. In the controversy, therefore, we must distinguish radically between the question of process affecting the modality of conviction and the subject matter of assent or denial. "Faith" has too often been the appeal for the support of truth when the alleged fact was not supportable by "reason," as an organon of fact and experience. "Faith" as an inductive process, which is the only legitimate meaning of the term as implying assent to propositions, may very well guarantee conviction in scientific matters as well as in religion, but as a quality of will it does nothing of the kind. The only way to give it a function which science cannot attack is to limit it to

this quality of will toward a person or principle. But to give it the function of determining probability as distinct from certitude concedes it a place in science and does not make it the organon of religion solely, but opens the way for convictions in science quite as opposed to religious dogma as any demonstrative truth against it. A probability in science is quite as cogent for creating scepticism as a certitude when the choice has to be made between the more and the less probable. The consequence is that "faith" can have no function independent of the authority of science, unless it limits its meaning to the quality of will which conforms conduct to the best that we know and waits for further knowledge.

It is sometimes said that Kant's philosophy provides a perfect reconciliation between science and religion, between "reason" and "faith," by virtue of the admission that, although God and immortality cannot be disproved, they may be objects of "faith." The argument may be stated somewhat thus. Kant maintains that God and immortality cannot be proved. In ordinary parlance this negative conclusion is tantamount to the admission that they cannot be believed, as it is wrongfully assumed that the absence of evidence is equivalent to the denial of the fact. It is this negative side of Kant, that is, his negation of the positive argument, that is usually emphasized by the sceptic. But Kant was also quite as emphatic in maintaining that the existence of God and immortality could not be disproved, and in this balance between proof and disproof, the position of pure agnosticism, Kant was supposed to guarantee the rights of "faith" to believe or assert what "reason" could neither certify nor discredit. This appears to say that if you call a mental process "reason" it cannot do what it can do if you call it "faith." To the present writer nothing can be more absurd than such a method of reconciling science and religion. The incompetency of the mind in any field shuts out the right to form any judgment in it whatever.

Such a view, however, does not exactly represent the doctrine of Kant. He does not explicitly state the case in any such way, although there is much in his point of view to suggest this conception as the brief way of indicating his doctrine. What Kant does is to draw the distinction between "faith" (Glauben) and "knowledge" (Wissen) in a way to indicate that the difference is between personal convictions, subjectively sufficient, and truth that can be dogmatically proved, objectively sufficient, that is, between what one can believe himself and what he can make others believe. But he did not develop in the Kritik the basis upon which this personal belief rested. He did this

in his later work on practical reason where he made the argument "moral" and not "logical." I do not think that his procedure was valid without the recognition of the theoretical principle which gave his argument what little force it possessed. He assumed the explanatory power of "nature," which in fact it did not possess, and so forced himself to conceive God as transcendent instead of immanent, and consequently had no argument but the "moral" to support it. But he did not see that the actual cogency so often felt for this argument was derived from the element of inductive reason involved in it.

There are two fundamental weaknesses in Kant's discussion of the problem. The first is his conception of God which he accepted from the scholastic dualism that his own position destroyed, a conception which was the *a priori* consequence of the assumed nature of matter and not the result of inference from proved facts. Had Kant seen that the idea of "nature" did not involve the explanatory at all; had he seen that the primary conception of causality was neither phenomenal nor cosmological, and had he sought to form his conception of God from the facts of nature, as this duty was implied by his respect for the teleological argument, instead of assuming that its cogency applied to the scholastic transcendentalism, he would have had no grounds to resort to "faith" as the organ of belief regarding God and immortality. The second weakness of Kant's doctrine was his failure to consider the problem of induction in his conception of "reason" and "proof." Kant borrowed his whole conception of "reason" from the scholastic idea of ratiocination as the primary function or organon of truth. In the crucial situations affecting his argument his "reason" does not mean the mind as a whole but the logical and deductive process which was the scholastic and dogmatic agency for determining conviction. Though he recognizes "experience" as the source of ideas he does not develop the logic of it, which is inductive, but only the "judgments of experience." This would have been to admit as a function of "reason" something more than "*a priori*" and deductive demonstration or "proof," and so to have applied the idea of "proof" to the inductive process as well; that is, to have admitted two kinds of "proof," one inductive and the other deductive. But Kant had such a strong predilection for the scholastic habit of assigning "reason" the function of determining certitude that he never conceived the place of inductive ratiocination in the theory of "knowledge," a view that appeals to evidence and fact for its support of conviction, and consequently, when he conceded "faith" a function in the formation of convictions on transcendental matters he seemed to favor the very dogmatism which

he sought to eradicate; for it may be said that it had nearly always made God and immortality objects of this function, and when "reason" was appealed to it was with the purpose of increasing the mind's certitude on such matters and sustaining the idea that there was a connection between the transcendental and phenomenal worlds, a connection that was admitted by Kant when he assumed the existence of an "unknown" cause (Ursache) of phenomena. His strenuous denial of the competency of "reason" to certify the great doctrines of religion, assuming "reason" to be the deductive and *a priori* function of intelligence, and failing to analyze and use the inductive method in his theory, he prevented himself from making "faith" consistent with science and reason by giving it an inductive function in the formation of convictions and affording some measure of probability or choice in favor of one or the other alternatives in belief. But the impression left by Kant's conclusion was that "reason" could do nothing and "faith" everything in the important beliefs of the world, while he said nothing to show the value of the "reason" he accepted in the phenomena of nature. The real or anomalous character of this position consisted in the facts that mankind regarded God and immortality as fundamentally more important than any truth about the cosmos and the present life and that Kant would neither affirm nor deny this fact, while he discredited the competency of "reason" in the transcendental and held it competent for the phenomena in which no one had any ethical interest. If Kant had explicitly declared that the field in which "reason" was competent had no importance for ethics and religion and that the field in which it was incompetent was all-important, his relation to religion would have been clear, consistent, and intelligible. But it was necessary to throw a sop to Cerberus and the most convenient way to pacify the monster was to admit a function for "faith" and to remain silent on the valuation of "reason" in the sphere of the natural and the phenomenal. Kant, therefore, has done nothing to reconcile science and religion, because he is hopelessly involved in the meshes of a dualism, one term of which is "unknowable" and the other presumably worthless for morality.

The function of "faith," as I have suggested above in the analysis of the equivocations attaching to the term, must be clearly defined in all attempts to estimate its relation to scientific methods. Wherever it is assigned a function for determining a mental attitude toward propositions, it can only be more or less identical with some process of *reason*, whether intuitive or ratiocinative, deductive or inductive. Wherever it is a quality of will it has nothing to do with assent to

truth of any kind, but with the readiness to test any alleged truth by conformity practically to what it demands. This assigns it the function of expectation in a situation where necessity is not a quality of the conceptions involved. As assent to propositions it has always been distinguished from deductive ratiocination and so has fluctuated between intuition or personal insight and the acceptance of truth on authority with the minimum of inductive reasoning involved, this being limited to the possibility of a truth as attested by the character and knowledge of the assertor. This conception, however, absolutely prevents any conflict with science by making it a function in the study of phenomenal facts as well as in the acceptance of the transphenomenal, and so cuts religion off from any other court of appeal than scientific method itself. But considered as expectation, a state of mind on the border-line between assent and action, it has nothing to do with the determination of truth, certain or probable, but with the prudence of action in accordance with a possible or probable fact not immediately or certainly known. This conception also leaves to scientific method the determination of all convictions.

It remains to consider the work of philosophy in the general development of man and in the problems between science and religion. I shall treat it as essentially the same with science. It only happens that the narrower conception of the term "science," whether as the study of physical phenomena alone or as a mere study of the laws, the coexistence and sequences, of all events of whatever kind, is not commonly understood to represent the critical study of conceptions or metaphysical problems. The broader meaning of the term includes these, as it concerns method rather than subject matter alone. But as the usual habit of defining an inquiry is determined by its subject matter or territory, the reflective study of ideas and of problems beyond "empirical science" in the field of physical phenomena gets the name of "Philosophy," as distinguished from nomological questions. "Philosophy" thus happens to study problems which "science" has not often under that name presumed to consider, especially when they have been complicated with psychological factors. There is a common field, however, in cosmic problems even when the purpose and mode of discussing them is not the same. But in all history "philosophy" has been expected to consider the most general questions of nature and mind and this makes it the final arbiter in all the matters that have been discussed in this conclusion, though it is conditioned in its work, as I think and insist, by the methods and results of the "empirical" and physical sciences.

The one general problem which usually distinguishes philosophy from the particular sciences is the reciprocal relation of man and cosmos. This has always been an absorbing theme with certain types of mind and it concentrates itself in the questions of ethics and religion and these about the existence of God and the immortality of the soul. "It is justly said," says John Morley, "that at the bottom of all the great discussions of modern society lie the two momentous questions, first whether there is a God, and second whether the soul is immortal. In other words, whether our fellow-creatures are the highest beings who take an interest in us, or in whom we need take an interest; and, then, whether life in this world is the only life of which we shall ever be conscious. It is true of most people that when they are talking of evolution, and the origin of species, and the experiential or intuitional source of ideas, and the utilitarian or transcendental basis of moral obligation, these are the questions which they really have in their minds. Now, in spite of the scientific activity of the day, nobody is likely to contend that men are pressed keenly in their souls by any poignant stress of spiritual tribulation in the face of the two supreme enigmas. Nobody will say that there is much of that striving and wrestling and bitter agonizing, which whole societies of men have felt before now on questions of far less tremendous import. Ours, as has been truly said, is 'a time of loud disputes and weak convictions.' In a generation deeply impressed by a sense of intellectual responsibility this could not be. As it is, even superior men are better pleased to play about the height of these great arguments, to fly in busy intellectual sport from side to side, from aspect to aspect, than they are intent on resolving what it is, after all, that the discussion comes to and to which solution, when everything has been said and heard, the balance of truth really seems to incline. There are too many giggling epigrams; people are too willing to look on collections of mutually hostile opinions with the same kind of curiosity which they bestow on a collection of mutually hostile beasts in a menagerie. They have very faint predilections for one rather than the other. If they were truly alive to the duty of conclusiveness, or to the inexpressible magnitude, of the subjects which nominally occupy their minds, but really only exercise their tongues, this elegant Pyrrhonism would be impossible, and this light-hearted neutrality most unendurable."

Such being the fact the duty of philosophy is to have some intelligible message on the great issues that have been mentioned. In Plato and Aristotle this responsibility was felt and philosophy continued its service in that field, whether for good or ill, until the time

of Kant. But the outcome of Kant's work was such a spirit of agnosticism and the intolerance of the religious world toward honest doubt has been so effective, that philosophy cannot speak its mind so freely as is necessary to insure its usefulness. It has been obliged to confine its reflections to the theory of knowledge and problems that have no manner of human interest in general, however important they may be for the philosopher himself. It should be free to speak as freely against religious illusions as it is to utter unintelligible and eulogistic phrases that are construed as a defence of it, but which are only subterfuges for the alteration of its meaning. It has not been as a fact institutionally free, ever since Kant, to correct the tendencies of the religious mind to cling to sensational and anthropomorphic views, but has been obliged to compromise itself by an idealism that is as unintelligible to science as it is deceptive to religion of the prevalent type. It is only outside institutional philosophy that we can get any bold critical work. The work and influence of Mr. Spencer is evidence of this. No academic philosophy will compare with his in power and effect, whatever adverse judgment we pronounce upon his system. It has been the academic philosopher that has attacked Mr. Spencer most vigorously and that attack has been directed almost exclusively against his "metaphysics" of the "Unknowable" while his doctrine of the "knowable," his science, which was as much or more opposed to the ordinary religious conceptions than any of his "metaphysical" agnosticism, was systematically ignored. It was his doctrine of evolution that played such havoc with the prevailing theology and not his agnosticism, though the theological world allowed the reverse idea to survive as long as possible. Now that Mr. Spencer has made it clear in the last edition of the "First Principles" that the doctrine of the "knowable" is not logically dependent upon the correctness of his theory of the "Unknowable," there is no longer any excuse for using an easy victory over his "metaphysics," that are undoubtedly vulnerable in their logic and misunderstanding of the problem, to insinuate but not assert that this result is favorable to religion while the science of the "knowable" retains its integrity against it. It does not save the reputation of the philosopher to permit the public to draw an inference from the attack on Spencer's agnosticism, which the philosopher himself does not regard as valid. But this has been the general course of his critics to vociferously denounce his "metaphysics" and to remain silent on the more destructive character of his science. It were better if the academic world could frankly and boldly announce a doctrine of agnosticism in religious matters, as sincerity, clearness, and directness are more in-

fluential and redeeming with honest thinkers than any amount of canting concession. It is certain that the jargon of Kanto-Hegelianism contains no definite message but agnosticism that can be intelligible to any but the initiated. It may be true, as we please to regard it. That I am not disputing. But how does it affect the great general questions in which the human race rightly or wrongly is interested? Can it firmly and openly defend the secular against the religious or the religious against the secular view of life, as they are ordinarily understood? Or can it mediate with sufficient clearness and earnestness between them? It certainly has not effected any of these results and its action is not qualified to effect them. If the Kantian and Hegelian systems were clear enough to have their sceptical position definitely understood, the problem would be explicitly defined and we should know what we believe regarding them when we approached religion and its claims. But unfortunately they disguise their real spirit and have not the courage or the freedom to defend it. They will not boldly defend the value of scepticism for man, but content themselves with the concealment of positivism behind metaphysical language. This only makes them hard to understand when they might as well be clear. I accord them the value of making hard students who have first to understand philosophy before they can understand these masters, but they have hardly any other service when it comes to producing clear and earnest convictions. The philosopher's first duty is to think out his problems in his own language and to give the result the widest intelligibility and acceptance that are possible. This is especially true, as I have remarked, in a democracy. Philosophy, like everything else in democratic civilizations, must extend its service to the community at large or lose its place in education. It must have a message for the world in general, and it must be able to make that message clear. It does not require that it shall pander to prejudice and ignorance as the price of influence. There are various ways of a perfectly honest sort by which it may correct the errors and illusions of the world without compromising its dignity or integrity and without antagonizing the ideals that are imprisoned even in the basest of superstitions. All that it requires is sufficient knowledge of life and elasticity of mind to adjust its work to the complexity of the situation, stating clearly the strong and the weak aspects of the religious temperament, and to feel enough for all orders of men to show the application of philosophic thought to the commonest details of life.

Unfortunately, ever since Kant, it has had no positive message for the world, such as would be regarded as helpful. Having left to "faith" the belief of what has presumptively no rational evidence for

its existence; having adopted the gospel of agnosticism under the guise of an idealism which vociferously denounces a materialism that is harmless or irrelevant to the great problems of human interest as ordinarily conceived, and having cut itself loose from the "empirical" and physical sciences in both method and results, it is wandering about in *a priori* reflections on nature that appear to have a meaning because the language in which they are couched seems to favor the religious view, while their real conceptions are concealed behind equivocations which few detect. It will not explicitly and courageously emphasize the nature and extent of our agnosticism in regard to the claims of "faith," or better, the illusory and erroneous conception of the common religious mind. It either evades them altogether and concentrates its attention upon the problem of epistemology which has a purely minor interest, unless its conclusions can be utilized to enforce the lesson of knowledge or ignorance on the religious question, or it takes refuge in a jargon that has an orthodox ring but a heterodox meaning. What it needs most is the same missionary zeal for the limitations of knowledge on transcendental things as the religious mind has for its creed, that it may show where our real life and duties are to be occupied. But the consequence of its latitudinarianism and subterfuges is that it provokes the criticism which Kant himself, who was not altogether remiss on this point, had to direct against it in his own time. His remarks are found at the close of the *Kritik* in the section on the "*Discipline of Pure Reason*," which should be studied quite as much as his theory of space and of judgment. Speaking there of the abuse that had been directed against Hume and Priestley for their scepticism, he makes a strong plea for frank and courageous speech on the fundamental problems of philosophy and deprecates the disingenuousness that prevailed in the treatment of those problems, having been himself nauseatingly emphatic in proclaiming the truth of agnosticism.

"There is in human nature a certain disingenuousness which, however, like everything that springs from nature, must contain a useful germ, namely, a tendency to conceal one's own true sentiments, and to give expression to adopted opinions which are supposed to be good and creditable. There is no doubt that this tendency to conceal oneself and to assume a favorable appearance has helped toward the progress of civilization, nay, to a certain extent, of morality, because others, who could not see through the varnish of respectability, honesty, and correctness, were led to improve themselves by seeing everywhere these examples of goodness which they believed to be genuine. This tendency, however, to show oneself better than one really is,

and to utter sentiments which one does not really share, can only serve provisionally to rescue men from a rude state, and to teach them to assume at least the appearance of what they know to be good. Afterwards, when genuine principles have once been developed and become part of our nature, that disingenuousness must be gradually conquered, because it will otherwise deprave the heart and not allow the good seeds of honest conviction to grow up among the tares of fair appearances.

"I am sorry to observe the same disingenuousness, concealment, and hypocrisy even in the utterance of speculative thought, though there are fewer hindrances in uttering our convictions openly and freely as we ought, and no advantage whatever in our not doing so. For what can be more mischievous to the advancement of knowledge than to communicate even our thoughts in a falsified form, to conceal doubts which we feel in our own assertions, and to impart an appearance of conclusiveness to arguments which we know ourselves to be inconclusive? So long as those tricks arise from personal vanity only (which is commonly the case with speculative arguments, as touching no particular interests, nor capable of apodictic certainty), they are mostly counteracted by the vanity of others, with the full approval of the public at large, and thus the result is generally the same as what would or might have been obtained sooner by means of pure ingenuousness and honesty. But where the public has once persuaded itself that certain subtle speculators aim at nothing less than to shake the very foundations of the common welfare of the people, it is supposed not only prudent, but even advisable and honorable, to come to the succor of what is called the good cause, by sophistries, rather than to allow our supposed antagonists the satisfaction of having lowered our tone to that of a purely practical conviction, and having forced us to confess the absence of all speculative and apodictic certainty. I cannot believe this, nor can I admit that the intention of serving a good cause can ever be combined with trickery, misrepresentation, and fraud. That in weighing the arguments of a speculative discussion we ought to be honest, seems the least that can be demanded; and if we could at least depend on this with perfect certainty, the conflict of speculative reason with regard to the important questions of God, the immortality of the soul, and freedom, would long ago have been decided, or would soon be brought to a conclusion. Thus it often happens that the purity of the motives and sentiments stands in an inverse ratio to the goodness of the cause, and that its supposed assailants are more honest and more straightforward than its defenders."

This is a strong indictment of philosophers from one who has not wholly escaped criticism for the same real or apparent fault, and it seems to reproach them for cowardice and hypocrisy. But I am far from impugning them for so unfortunate a situation which exposes them as the world's teachers to this accusation. The fact is that they are quite ready to speak their minds, if they were conceded the freedom they need and deserve. But democratic institutions will not grant this, and whether we call a government democratic or monarchic the extent of the suffrage makes all our western civilizations democratic in character and influence. A democracy insists upon reducing everything to the level of the lowest class that can hold the balance of power. We usually charge socialism with this tendency, but it is probable that in every form of government socialism would soon develop into an aristocracy. But however this may be, democracy exalts the judgment and importance of the unintelligent classes that may happen to possess the balance of power. The demagogue and the politician appeal to the passions of the populace and flatter it with praise for its abilities to decide social questions until, with its acceptance of weak journalism as a gospel, it comes to feel that it is equal to the best in the determination of political counsels. The same spirit is fostered by the large number of religious denominations with their insistence upon the right of private judgment without tolerance for that of others. Our educational institutions are organized on the basis of making concessions to this tendency and the result is that any attempt to teach disagreeable truths to political and religious masters is resented and missionary work is impossible, unless it expresses the belief of those who are to receive the teaching! Philosophy suffers especially from this condition, because its duties bring it into more ready conflict with the naïve religious conceptions of the masses, who prefer to lead and govern rather than be instructed and guided. Philosophy has either to accommodate itself to popular opinion or to occupy itself with useless or curious and unintelligible problems. It is not the right of the public to demand sincerity and missionary fervor when it will not concede the freedom of thought and speech which are so necessary a condition or test of them. We shall not have any independent philosophizing until men can criticise popular conceptions as freely as they are permitted to adopt or flatter them. Those who are willing to undertake the correction and guidance of the human mind must be allowed the right to dissent and criticise as well as to believe or to be adepts in prudence and silence. This freedom is fully enjoyed by the non-academic man, who has no calling to sustain and no bread to win,

when he undertakes the expression of opinion. But our educational institutions are organized to pay respect to public opinion, not to direct it beyond its willingness to listen, and this opinion with its tyrannical love of power must not expect its dependents to cultivate any other virtues than are actually permitted. There is no use to charge hypocrisy in such a situation, as hypocrisy is not a vice where there is no freedom. The conduct which often goes by that name is a perfectly legitimate mode of defence against intolerance. The tendency and right to accuse the teacher of this are the inheritance of those ages when the university was the leader, not the servant of the masses, and those conditions must be restored if that vice is to have any reproach. Moral courage and sincerity can be demanded only when there is tolerance for difference of opinions and readiness to listen to knowledge when it comes from those whose function it is to know and impart it. Dialectical freedom was thought by Plato to be necessary to prevent intellectual pride, but he required that the pupil should be young and noble and fair as a condition of becoming sober and gentle toward other men and of not fancying that he knows what he does not know. The want of nobility of character made impossible, he thought, that insight which was the only source of the vision sublime. The philosopher is no less in need of this freedom as a condition of both his sincerity and usefulness. If it is not granted him his calling must degenerate into the prudential consideration of safe and curious problems.

Religion must accept, or at least share, the blame for this situation. Its obstinate antagonism to the "natural" has only succeeded in anthropomorphizing the conception of God and his functional relation to the world and in divorcing the "supernatural" from the conception of law and order which the modern mind, infected with the scientific spirit or with the view of "nature" which that spirit has created, has come to respect. At first even Greek belief was divided on these matters. Its fundamental conception of the gods endowed them with caprice, but in the course of development they were either relegated to the intermundia, where they were divested of interference in the affairs of the world, or were subordinated to the will of one supreme power who was subject to but one limiting influence, namely, that of Fate. This was a tacit denial that personality lay at the basis of things. Religion accepted the challenge and in subordinating cosmic phenomena to intelligence neglected to fully reconcile it with law and made the Divine capricious, as reflected in its theory of creation, its illustrations of miracles, and in its doctrine of salvation by grace. It was arbitrary intervention in the order of things that led the Epicureans to

put the gods out of court. Man cannot endure the exercise of irresponsible and incalculable power. He must rely upon constancy in cosmic events, and in fact can himself be made responsible only when his ideals, which seem so imperative for his development, can rely upon that constancy for their realization. Had Christianity identified the Divine more closely with the fixed order of "nature" and made its will less capricious than it did, it would have accomplished all that Epicureanism effected and at the same time it would have invoked for that order the spirit of reverence that had characterized the Greek mind for "nature." As Fate was the shadow which nature cast on the Divine, it was quite natural, in the reaction against that inflexible order which had troubled man in his vision of God and which had shown him only the ugly side of the shield of Hercules, that he should endow personality with instability of character and thus make it the heir of the caprice that had determined the nature of the Greek gods. But fortunately he denuded it of their malice and inhuman propensities, and hence the attribute of benevolence saved it from ruin. But the progress of knowledge and of scepticism has so disturbed man's hopes for the future that he can see no benignities in the struggle for existence and the discovery reflects its somber hues again on the conception of the Divine and throws the whole responsibility for the restoration of those ideals and hopes upon the problem of a future life. Our conception of the Divine must be affected by what we think or know is the actual outcome of things, a situation created by the supremacy of scientific method which is the determination of truth by observation of present facts and not the mere deduction of prospects from *a priori* theories. Hence the present moment must be found to reflect the future in some way as a means of deciding whether its course is as rational as it is inexorable, and the first step in this is the conviction that consciousness is as permanent as the mechanical order.

Whatever we may think of Kant he faced and discussed the great problems which had constituted the nature of philosophy from the beginning of its reflections. He did not hesitate to pronounce a sceptical verdict upon them, and history will recognize the value of this result when it comes to estimate rightly and justly the service of scepticism to civilization in diverting man away from transcendental ideas which had induced him to neglect his proper social and practical duties. Kant's defect was that he did not see clearly enough his way to show how missionary enthusiasm, that is, all the moral fervor of the old religious ideal, could be applied to the natural life when the "other worldliness" of transcendentalism had been discredited. In

the attempt to correct the impersonal view of things in Greek thought, which had reacted against mythology, Christianity had rushed off again into the opposite extreme, adopting a personal conception of the cosmic order and concentrating a passionate attention upon an existence beyond the present life that wholly underestimated the nature and importance of man's duties and relations to his present environment. Kant's philosophy called him back from this transcendental debauch into the world of reality where the drama of actual life has to be played and where ethics have all their beauty and imperativeness in aims and ends that may have a relation to the hereafter but that may be nevertheless as valid, though they may not be as efficient, without this hope. Kant stated these duties in a severe formula and with a tendency to admit that the rewards of virtue could only be found in another world. But the development of ethical reflections leads us more and more toward the view that ideals need not lack attainment in the present order, if only we have the insight and courage to see and realize them within the limits of the conditions to which we are immediately responsible. Philosophy has a mission to inculcate the pursuit of the ideal in the real world and in the interest of this aim it need not counsel stoicism for the present life and tacitly or explicitly concede the right of inspiration to the transcendental, though further scientific investigations may reveal a prospect for the future that may stimulate moral endeavor as much as it can color life with religious fervor and passion.

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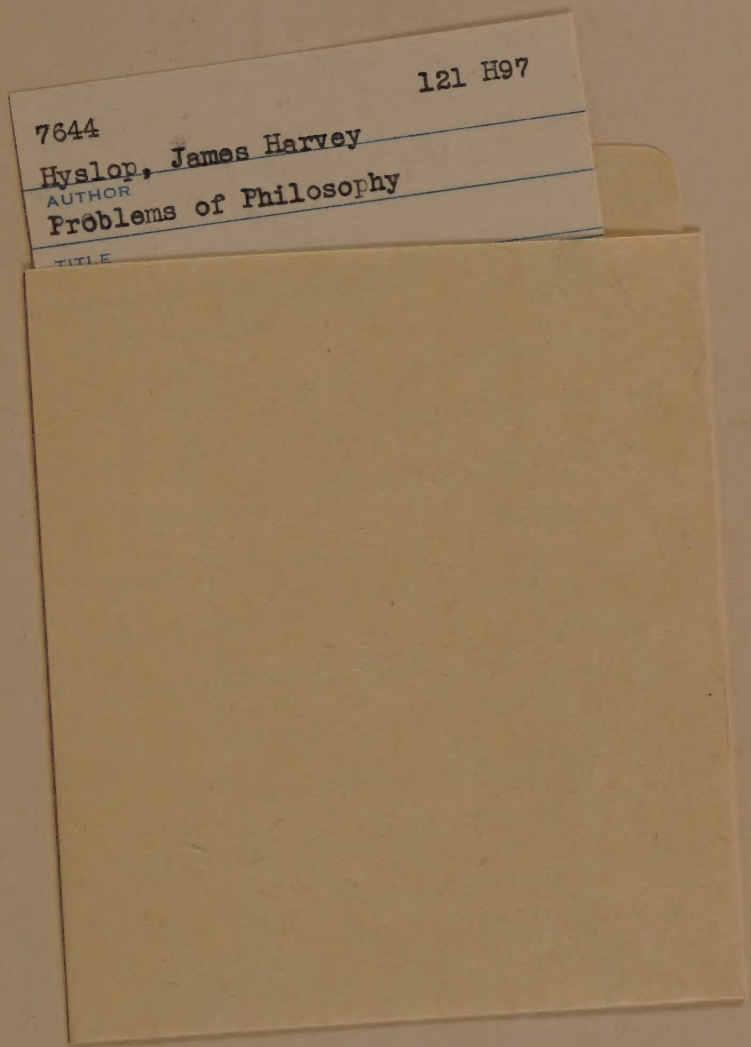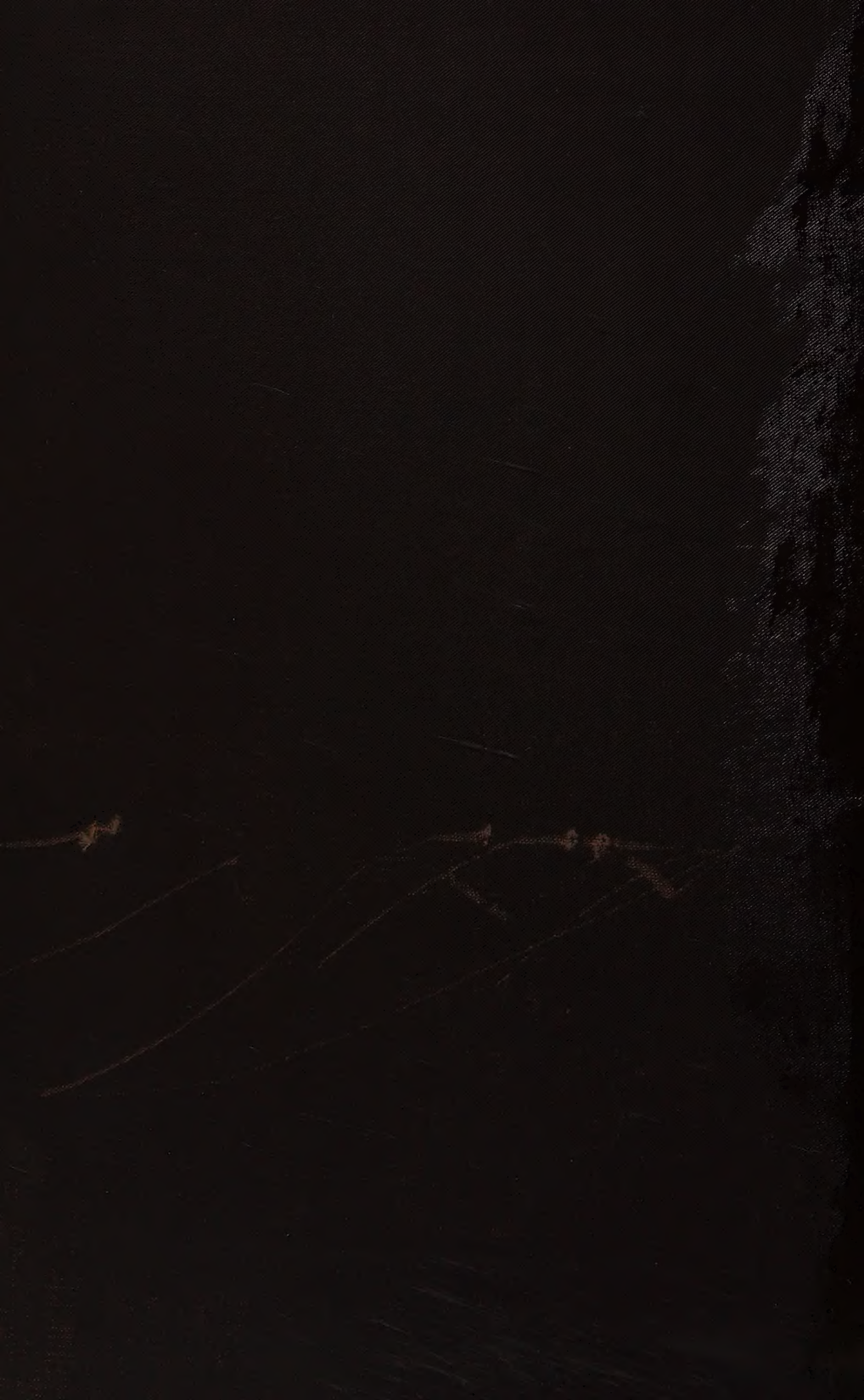
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